

THE COPPER MINING INDUSTRY

SPEECHES

OF

HON. RALPH H. CAMERON

A SENATOR FROM THE STATE OF ARIZONA

DELIVERED IN THE SENATE
APRIL 9 AND JUNE 26, 1926



PRESENTED BY MR. McNARY

JULY 1 (calendar day, JULY 2), 1926.—Ordered to be printed

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SPEECH OF HON. RALPH H. CAMERON, OF ARIZONA, IN THE SENATE
OF THE UNITED STATES, FRIDAY, APRIL 9, 1926

Mr. CAMERON. Mr. President, on January 4 of this year I introduced in the Senate a bill, known as S. 2018, to provide a tariff duty of 6 cents per pound on copper, which seeks to give equitable protection to this great and needed industry. It is the same bill heretofore introduced in the lower House by Hon. W. Frank James, of Michigan.

I shall appreciate it if my colleagues will not interrupt me during this discourse unless it is absolutely necessary. My remarks will be confined to the copper situation in this country, and with especial reference to the provisions of the bill which I have introduced. The time has come when the deplorable conditions of this great industry must be called to the attention of the Congress of the United States and to all our people.

I ask that a copy of the bill I introduced be inserted in the Record at this point.

The Presiding Officer (Mr. McMaster in the chair). Is there objection?

There being no objection, the bill was ordered to be printed in the Record, as follows:

A BILL (S. 2018) To amend the tariff act of 1922, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, and for other purposes"

Be it enacted, etc., That Title 1 of the tariff act of 1922 is amended by adding after paragraph 380 the following new paragraph:

"PAR. 380-a. Copper ore of all kinds, copper concentrates, regulus, mattes, cement copper, and black or coarse copper, 6 cents per pound on the copper contained therein; old copper, scrap copper, fit only for remanufacture; copper scale, clippings from new copper; blister copper, copper in plates, bars, ingots, or pigs, not manufactured, and copper in any other form not specially provided for, 6 cents per pound; all alloys or combinations of copper not specially provided for, 6 cents per pound on the copper contained therein: *Provided*, That such duty shall not be applied to the copper contained in copper-bearing ores or mattes unless actually recovered: *Provided further*, That on all importations of copper-bearing ores and mattes of all kinds the duties shall be estimated at the port of entry and a bond given in double the amount of such estimated duties for the transportation of the ores or mattes by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped refineries, sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores or mattes at such establishments they shall be sampled according to commercial methods under the supervision of Government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a Government assayer designated by the Secretary of the Treasury, who shall make a proper assay of the sample and report the result to the proper customs officers, and the import entries shall be liquidated thereon. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph."

SEC. 2. Paragraphs 1533, 1555, and 1556, of Title II of the tariff act of 1922 are hereby repealed.

MR. CAMERON. Mr. President, American citizens residing within the copper-mining districts of the United States, and directly dependent for their livelihood upon the copper mined therein, are entitled to all the benefits of economic protection accorded to citizens engaged in the production of lead, zinc, iron, and aluminum, or those citizens engaged in manufacturing and agricultural activities. No protective discrimination is permissible in favor of only one class of industrial citizenship; all are entitled to and should receive equal consideration at the hands of Congress.

The copper miner of our country is entitled to protection from the cheap competitive labor of Africa and South America for the same basic economic reasons that Congress accorded protection to the lead miners of Missouri, Idaho, Utah, Oklahoma, and Montana from the lead mined with cheap labor in foreign lands; and the protection accorded to miners engaged in the production of zinc, aluminum, and iron within our country, against similar metals produced by cheap foreign labor.

A comparative review of economic details existent within the lead, zinc, iron, and aluminum industries prior to protection with those subsequent thereto, denotes how beneficent this policy has been to those of our citizens engaged therein.

An adequate tariff undoubtedly made it possible for the iron industry to salvage the low-grade sand iron ores of Minnesota and the lead and zinc industries to mine the low-grade lead and zinc ores of the Mississippi Valley. Without protection we can visualize certain interests rushing to ship into this country iron products from the world's highest grade iron-ore mines in Brazil, and the products from the high-grade lead and zinc mines of Mexico, Europe, and the Orient.

The recovery of metals from formerly noncommercial grade ores is the very essence of true conservation. With adequate tariff protection the domestic copper-mining industry will be able to work ores of exceptionally low grade when compared with present grade standards, and enormous additional copper poundage reserves now known to exist will be added to the present known commercial copper reserves. The result will be that the copper reserves of this country will be ample to care for all our domestic needs for decades to come. While they are mined new areas will be discovered which will undoubtedly add vast additional reserves sufficient to care for all our future domestic needs for generations to come.

A broad review of the industrial history of our country emphasizes that the protection accorded to practically each minute industrial subdivision thereof has resulted in making our country the one possessing the highest wage scale, and this in turn has developed a quality of citizenship and an aggregate national unity and strength beyond compare in world's history.

The care bestowed in protecting each minute subdivision of our industrial sphere has brought about a uniform solidity and strength in each subdivision. Each subdivision of our aggregate industrial realm possesses a certain parallelism to every other one therein. Each is an aggregate of labor, supply, and capital costs.

In the mining of copper ore we are also confronted with the sequence of labor, supply, and capital costs paralleling identically any and all other subdivisions. Our labor citizenship engaged therein is in need

of as beneficent protection as that accorded any other citizen of our country. Likewise, our supply and capital costs must be met just as surely as these are cared for in the other subdivisions of our industrial activities.

Copper is no more a so-called "raw resource" from a cost standpoint than any other product mined, grown, or manufactured within our industrial realm. The specious argument that copper is a "raw resource" and hence should be secured at minimum prices abroad and be imported free of duty can only be advocated by those interests controlling foreign copper reserves; or those persons who are desirous of securing and maintaining maximum domestic manufacturing profits.

It is just as tenable to advocate that all products used in all avenues of our industrial activities be secured from the cheapest possible foreign sources and admitted free of duty. A situation such as this would ruin all our domestic industries through a ruination of each subdivision thereof. Paid propagandists would have you believe that our domestic copper reserves are strictly limited and practically exhausted, and consequently copper from South America and Africa, produced with cheap Indian and negro labor, should be permitted to flood this country. This propaganda is founded on a false premise. Our domestic copper reserves are sufficient to care for our industrial needs for decades to come—just as long proportionally, at least, as the domestic reserves of our highly protected lead, zinc, iron, and aluminum industries. It is not a question of limited copper reserves harassing our domestic copper miner; his menace is competition with foreign copper produced with cheap labor.

The domestic producer of copper is confronted with constantly increasing labor, supply, tax, and capital requirement costs. Yet in the face of constantly increasing costs we find copper selling below its average sale price for the past 30 years. This is a dangerous economic situation in view of the universally higher prices existent to-day for practically all commodities when compared with the average prices for those commodities during the past 30 years; and strikingly so when consideration is given to the facts that copper is one of our essential metals, and that in the whole realm of metal production the annual gross value of copper produced is only exceeded by that of pig iron.

This below-average price of copper has existed for a sufficiently long time, about four years, to establish that this price is not due to domestic overproduction or lack of domestic consumption. This below-average price can be attributed to exterior or foreign factors. Lead, zinc, aluminum, and steel are selling at least 50 per cent higher to-day than their average sale price for the past 30 years. They are accorded protection, and each of them represents a greater world production percentage than does our domestic copper production. Inasmuch as the domestic copper mining industry is not a greater world percentage producer than the foregoing enumerated protected metal industries, it seems fair to assume that the domestic copper miner, upon receiving adequate protection, may expect to enjoy at least the same proportional wholesome economic benefits from his labor as that enjoyed by the citizens dependent upon the protected domestic lead, zinc, iron, and aluminum industries.

Our domestic copper-consuming market is greater than the consuming market of all the rest of the world. Inasmuch as the days of exporting domestic copper are practically over, due to the volume and cheap cost of foreign copper flooding and controlling the foreign market, it is indeed fortunate that the domestic copper miner, upon receiving adequate tariff protection, can be reasonably sure of enjoying wholesome economic prosperity by supplying the vast industrial needs of his own country.

It is evident that the protected domestic lead, zinc, aluminum, and steel industries can care for their increased labor supply, tax, and capital requirement costs due to the greatly enhanced selling price of their product. However, the domestic copper producer is approaching economic ruin due to the converging lines of increased costs and decreased selling price of his product. At the present time it is estimated that about one-third of our domestic copper production is in economic jeopardy due to marketing of copper at cost; with a further decrease in the selling price of copper, say to 13 cents per pound, about 65 per cent of the domestic copper will be marketed at a loss.

The ruin confronting the domestic copper producer will be passed on to the copper miner and all those citizens and communities dependent on the continued mining of copper within our country.

A brief review of certain historical phases of the domestic copper-mining industry is instructive.

About 40 years ago Michigan mined approximately 80 per cent of the domestic copper production. About 30 years ago Montana's copper production exceeded that of Michigan. About 15 years ago Arizona's annual production exceeded that of any other State. This increased domestic production from each of the foregoing States in sequence lowered the price of copper. These respective States could not prevent domestic competition between the States, the result being that each period of increased production furnished its quota of abandoned high-cost copper mines, and the only mines that survived were those possessing exceptional ore grade and ore tonnages. The copper miner who lost his livelihood and home equities in these abandoned high-cost areas, and likewise the business man, engineers, geologists, and operating companies, wandered away from their home areas into these new competitive domestic areas and started anew.

The foregoing domestic competition was fair and our country enjoyed exceptionally cheap copper, due not alone to our then possessing the world's largest and highest grade copper deposits, but likewise a very low wage, supply, and tax cost, plus the exceptionally high grade of ore mined. Yet with all this readjustment our country retained within its boundaries the personnel of the copper-mining industry—did not suffer an economic loss through this personnel wandering forth to foreign copper areas in order to secure a livelihood.

To-day the domestic copper miner is confronted with a competition never before existent in the history of the domestic copper-mining industry. It, however, is not of local but of foreign origin. If local he would have to bear it, would leave his home and surroundings, and wander forth to these new areas and start anew, his loss being an individual one, while the country as a whole would benefit from an increased supply of low-cost domestic copper.

The domestic copper miner is being rapidly driven away from his home areas. He can not wander off into new high-grade and large-volume domestic copper areas seeking a livelihood, for there are no areas at present within the United States that can anywhere near compete with the volume known to exist in South America and Africa. Surely our total citizenship does not wish to force the domestic copper miner into foreign lands, into the new areas which have recently developed unprecedented volumes and grade of copper ore. Surely you do not want to drive our copper miner and his progeny into these competitive areas and have him labor side by side with the Belgian Congo negro and the Indian miner of the Andes. On the other hand, if you wish to retain him, you must accord him protection, to enable him to meet the competition of the cheaper copper that this cheap labor produces. There is no question but that the copper miner of our country is a very essential economic citizen and that he is entitled to and should receive the same degree of protection accorded citizens engaged in any and all the other subdivisions of our industrial life. It is self-evident that without an adequate supply of domestic copper the foreign producer, whenever he secures control of our domestic copper market, will as surely overcharge the domestic consumer with the same degree of exploitive and calloused thoroughness now demonstrated by foreigners in control of rubber, potash, coffee, and other necessities of our Nation. Foreign nations, as well as their individuals, benefit from this extortion, and in view of their well-known rapacity national necessity demands that we always maintain an ample domestic production of copper.

The destructive nature of the competition, which is rapidly destroying our copper-mining industry, will be evident by analyzing the volume, grade, and economic factors pertaining to certain of these foreign competitive deposits and comparing them with the factors pertaining to our known domestic copper reserves.

Ten years ago there was no real foreign competition confronting the domestic producer of copper. To-day three so-called porphyry-type copper mines in Chile, the areas owned by the Chile, Braden, and Andes companies, have known copper-ore reserves aggregating 1,075,023,406 tons, averaging 2.07 per cent copper, and containing the enormous total of 44,498,700,000 pounds of copper. In order to convey a comparative idea as to the immensity of this reserve it may be stated that it is one-third larger than all the copper mined within the United States from 1845 to date. The loci of this copper poundage lies 173 miles inland, rail haul, and 4,040 miles, water haul, from New York.

The so-called porphyry-type copper mines in the United States—this type embracing practically all the large and definitely known domestic copper reserves—namely, the areas owned by Utah, Chino, Ray, Inspiration, Nevada Consolidated, and New Cornelia companies, have known copper reserves aggregating 719,505,600 tons, averaging 1.44 per cent copper, same containing the total of 20,704,296,000 pounds of copper. The loci of this domestic copper poundage lies 2,580 miles rail haul from New York, or the combination of 1,011 miles rail haul and 3,800 miles water haul.

In order to present ore tonnages, grade, ownership, and distance statistics in a condensed form, I submit four tables. I ask unanimous consent that these tables may be inserted in the Record without reading.

The PRESIDING OFFICER (Mr. McMaster in the chair). Without objection, it is so ordered.

The tables are as follows:

TABLE NO. 1.—*South American porphyry deposits*

Company	Ore reserves			Production			
	Tons	Grade	Pounds copper	Present	Years	Possible	Years
		<i>Per cent</i>					
Chile.....	671, 192, 906	2. 12	28, 713, 000, 000	200, 000, 000	143	740, 000, 000	39
Braden.....	252, 240, 000	2. 25	11, 619, 000, 000	140, 000, 000	83	300, 000, 000	39
Andes.....	138, 890, 500	1. 50	4, 166, 700, 000	None.	-----	200, 000, 000	21
Total.....	1, 075, 023, 406	2. 07	44, 498, 700, 000	340, 000, 000	131	1, 240, 000, 000	36
Compared with present production rate United States por- phyries.....						1, 100, 000, 000	40
Compared with possible production rate United States por- phyries.....						1, 500, 000, 000	29

TABLE NO. 2.—*United States porphyry deposits*

Company	Ore reserves			Production			
	Tons	Grade	Pounds copper	Present	Years	Possible	Years
		<i>Per cent</i>					
Utah.....	358, 546, 000	1. 35	9, 680, 742, 000	195, 000, 000	50	300, 000, 000	32
Chino.....	103, 966, 000	1. 52	3, 168, 000, 000	54, 261, 000	56	80, 000, 000	39
Ray.....	78, 763, 000	1. 50	2, 363, 000, 000	61, 385, 000	38	90, 000, 000	26
Inspiration.....	67, 738, 000	1. 50	2, 032, 140, 000	88, 881, 000	23	90, 000, 000	22
Nevada Consolidated.....	60, 680, 660	1. 62	1, 966, 054, 000	61, 573, 000	32	90, 000, 000	22
New Cornelia.....	49, 812, 000	1. 50	1, 494, 360, 000	38, 367, 718	39	60, 000, 000	25
Total.....	719, 505, 600	1. 44	20, 704, 296, 000	499, 611, 328	40	710, 000, 000	29

TABLE NO. 3.—*Control ownership of United States and South America porphyry copper deposits*

Company	United States		Chile		Total		Percentage owned or controlled		
	Pounds copper	Per cent	Pounds copper	Per cent	Pounds copper	Per cent	United States	Chile	Total
Anaconda.....	2, 032, 140, 000	10	32, 879, 700, 000	74	34, 911, 840, 000	54	6	94	100
Kennecott.....	17, 177, 796, 000	83	11, 619, 000, 000	26	28, 796, 796, 000	44	60	40	100
New Cornelia.....	1, 494, 360, 000	7	-----	0	1, 494, 360, 000	2	100	0	100
Total.....	20, 704, 296, 000	100	44, 498, 700, 000	100	65, 202, 996, 000	100	32	68	100

TABLE NO. 4.—*Ore reserve distances from New York City*

Mine	Known copper reserves (pounds)	Railroad miles from mine to New York		Combined route			
				Railroad miles from mine to seaport		Nautical miles from seaport to New York	
		Town	Miles	Seaport	Miles	Seaport	Nautical miles
Chile.....	28,713,000,000	-----	-----	Antofagasta.....	163	Antofagasta.....	3,800
Braden.....	11,619,000,000	-----	-----	Valparaiso.....	203	Valparaiso.....	4,637
Andes.....	4,166,700,000	-----	-----	Chanaral.....	160	Chanaral.....	4,000
Summary.....	44,498,700,000	-----	-----	Average.....	173	Average via Panama.....	4,040
Utah.....	9,680,742,000	Bingham.....	2,491	San Francisco.....	872	San Francisco via Panama.....	5,305
Chino.....	3,168,000,000	Santa Rita.....	2,448	Galveston.....	1,008	Galveston.....	1,850
Ray.....	2,363,000,000	Ray.....	2,842	do.....	1,392	do.....	1,850
Inspiration.....	2,032,140,000	Miami.....	2,643	do.....	1,203	do.....	1,850
Nevada Consolidated.....	1,966,054,000	Ely.....	2,685	San Francisco.....	786	San Francisco via Panama.....	5,305
New Cornelia.....	1,494,360,000	Ajo.....	2,795	Galveston.....	1,355	Galveston.....	1,850
Summary.....	20,704,296,000	Average.....	2,580	Average.....	1,011	Average.....	3,800

District	Possible annual production (pounds)	Railroad miles from mines to New York		Combined route			
				Railroad miles from mines to seaport		Nautical miles from seaport to New York	
		Town	Miles	Seaport	Miles	Seaport	Nautical miles
Butte.....	250,000,000	Butte.....	2,460	Seattle (Port Townsend).....	706	Seattle via Panama.....	6,080
Bisbee.....	200,000,000	Bisbee.....	2,560	Galveston.....	1,120	Galveston.....	1,850
Jerome.....	150,000,000	Jerome.....	2,656	Los Angeles (San Pedro).....	546	Los Angeles via Panama.....	4,850
Summary.....	600,000,000	Average.....	2,540	Average.....	804	Average.....	4,390
Katanga (Africa).....	900,000,000	Elizabethville.....	-----	Benguela (Lobita Bay).....	1,100	Benguela.....	5,800
Cerro De Pasco (South America).....	150,000,000	Cerro De Pasco.....	-----	Callao.....	213	Callao.....	3,392

Mr. CAMERON. Mr. President, a comparison of the foregoing enumerated porphyry ore reserve denotes that the three Chilean mines have known copper poundage reserves two and two-tenths times the known copper poundage reserves embraced within the six United States mines. This means that the Chilean mines can produce two and two-tenths times the amount of copper per annum during an equivalent time period when compared with the possible annual production from the six domestic mines. The six domestic mines did in 1923 produce 499,611,328 pounds of copper, this representing 34 per cent of our total domestic production. The Chilean mines can produce two and two-tenths times this, or an average of 1,100,000,000 pounds of copper per year for the next 40 years.

The average grade of the Chilean ore reserves is about 50 per cent greater than the average of our domestic mines. This denotes a much less mining, milling, and leaching cost for the Chilean copper than our domestic copper. The Chilean copper poundage lies an

average of 800 miles nearer New York than the domestic poundage. This denotes that Chilean copper can be laid down in New York at less transportation cost than our domestic copper.

The Chilean copper poundage due to its nearness to tidewater, about one-sixth of the rail distance of the domestic poundage, enjoys a much lower supply transportation cost than our domestic copper. The low cost but efficient Chilean miner of Indian origin receives vastly less for his labor than our domestic copper miner. Surely the Indian of the Andes with his limited civilization, simple wants, lack of educational opportunities, and repressed since the days of Pizarro, is no fit economic companion for our domestic copper miner. No one within our country, outside of those international commercialists striving for tribute through utilization of this cheap Indian labor, would claim otherwise. However, their sleek arguments are overwhelmingly controverted by the well-known and easily ascertainable facts pertaining to the repressive and low-wage conditions besetting the Andean Indian.

The competition of this labor with that of our domestic copper miner must be eliminated through placing an adequate tariff on the product this cheap labor produces; namely, foreign copper. Now the Chilean copper producer can purchase his supplies in the free-trade markets of the world, carry his copper to New York in foreign bottoms, and sell it without import duty in our highly protected domestic market.

It is evident that the Chilean producer can deliver his copper in New York at an average cost price of 6 cents per pound. The 1923 cost per pound for copper delivered in New York for the six foregoing-enumerated domestic mines, representing about 34 per cent of the 1923 production, is estimated to be about 10½ cents. Excluding Utah Copper Co., which mined about 40 per cent of the aforementioned group production, the copper cost for the remaining five mines was about 12 cents per pound.

In addition to the menacing flood of cheap Chilean copper, the domestic copper miner is immediately confronted with an enormous production from the Katanga district, Belgian Congo, Africa.

The Union Minière du Haut Katanga reports as of 1924 a reserve of 74,686,600 tons of ore averaging 6.69 per cent copper, same containing a total of 9,993,000,000 pounds of copper. To convey an idea of the immense size of this reserve it may be stated that it about equals Arizona's total production, 15 per cent greater than Montana's total production, and 35 per cent greater than Michigan's total production of copper from 1845 to date. These three States have produced about 80 per cent of all the copper mined within the United States from 1845 to date.

The loci of the Katanga copper reserve lies 1,100 miles, rail haul, to Benguela, on Lobita Bay, west coast of Africa, and 5,800 miles water haul to New York. Assuming the water haul equivalent to 580 rail miles, we find this reserve lies within an equivalent 1,680 rail-mile haul from New York, this rail haul being 800 miles less than the rail haul from the loci of all the United States copper deposits to New York. Through the utilization of foreign bottoms it is evident that Katanga copper can be laid down in New York at less transportation cost than our domestic copper. It should require

about two years to build the remaining one-half of rail mileage between the Katanga reserve and Benguela. Certainly no economic factor should intervene and prevent completion of this shorter haul to tidewater when consideration is given to the fact that the value of the definitely known copper reserves exceeds by fifty times the probable cost of rail completion.

In order to emphasize that the Katanga reserve is not a languishing or a possible future competitor, but one of the present, even though they are for the moment handicapped by inefficient plant facilities and a 2,300-mile rail haul to tidewater, it may be stated that it did during 1924 produce 188,250,000 pounds of copper at an average cost of 10.4 cents per pound and with a profit for the year of \$5,030,000.

We have no single high-grade copper-ore reserve within the United States or Alaska that can be compared in volume with the Katanga reserve. In fact, the sum total of all our known so-called high-grade copper reserves can not be compared for the reason that they do not contain anywhere the copper poundage of the Katanga reserve. The average grade of all the copper ore mined within the United States for 1925, containing 1,464,165,000 pounds, was 1.70 per cent copper. About 78 per cent of our copper was mined from ores averaging 1.4 per cent copper. The remaining 22 per cent was mined from ores averaging 6.7 per cent copper.

The copper areas which furnish most of the high-grade ore are at Bisbee and Jerome, Ariz., and in the Copper River district, Alaska. The Butte district was formerly the largest producing high-grade domestic copper, but for more than a decade the grade of ore mined there has averaged less than 2.5 per cent copper.

The Bisbee, Jerome, and Copper River districts produced in 1923 about 22 per cent of our total production, at an average cost of 9 cents per pound, from ores averaging 6.7 per cent copper. The Bisbee district in 1923 produced about 100,000,000 pounds of copper from smelting ores averaging about 4.6 per cent copper. The Jerome district in 1923 produced about 140,000,000 pounds from ores averaging about 7 per cent copper. The Copper River district in 1923 produced about 84,000,000 pounds from ores averaging 11.6 per cent copper. The total of the above is 324,000,000 pounds of copper from ores averaging 6.7 per cent. This average for the domestic high-grade copper-ore districts is practically identical with the 6.69 per cent average for the Katanga reserve.

The Bisbee, Jerome, and Copper River districts have produced from 1880 to date about 6,000,000,000 pounds of copper, Bisbee having produced about 55 per cent, Jerome about 30 per cent, and the Copper River district about 15 per cent of this total. It required more than 44 years to produce 85 per cent of the foregoing total and about 20 years for the remaining 15 per cent, or an average of 40 years for the total output.

The foregoing total is only 60 per cent of the Katanga reserve. This conveys to you additional comparative information denoting the immensity of the African reserve.

There is no information available as to the aggregate copper poundage known to exist in the three foregoing high-grade domestic ore districts. They, however, contain large copper reserves, and the

adjacent known mineralized areas will undoubtedly continue to develop additional copper reserves for decades to come. They are deep metal-mining districts and excessive cost prohibits detailed ore explorations years in advance.

Costly shafts and underground workings must be run and maintained. Vast sums must be expended for pump installations to care for mine waters; likewise, vast sums to provide hoisting facilities. In addition vast sums must be expended for timber for underground supports and for fuel for pumping mine waters and hoisting ore. Furthermore, it will require the services of skilled mechanics to maintain mine equipment and experienced miners to maintain mine output. It is estimated that the daily production per miner employed will not exceed 2 tons of mined ore and that the mining cost will average about \$5 per ton of ore mined.

The menace to our domestic copper-mining industry from the Katanga reserve is not only that of cheap labor and the enormous volume and high grade of the ore reserves but also the unusual stratigraphic position of same. In the Katanga reserve the ore lies at the surface and its tonnage can be mined with steam or electrically operated ore shovels. The operators do not have to sink costly shafts or run and maintain expensive underground workings; no costly hoisting and pump equipment or maintenance charges therefor have to be met. No timber for mine supports or enormous quantities of power for ore hoisting and pumping mine waters are chargeable against their mine output. Accidents to their employees will be at a minimum, and they will be able to recover all their ore.

The Katanga ore reserve lies on the surface, and their mining problem is solely one of shoveling the ore directly into 50-ton ore cars. One skilled shovel operator can mine at least 1,500 tons of ore per shift, denoting a mined-ore efficiency many times greater than the output of the skilled underground miner within our domestic high-grade ore districts. In addition there are millions of Belgian Congo negroes available at wages that will not exceed 20 cents per day.

The Congo, with its reeking and soul-harrowing memories of enslaved labor, its jungle trails paved with countless sighing souls and trodden by the millions of forced tribute bearers of ivory and rubber in the past, are now to be used to gather copper for export to our domestic market.

One can visualize the malachite green and azurite blue of the Katanga ore shot through with the cuprite red from the straining, sweating, and soul-racked bodies of impressed labor. On the one hand we can see the few palatial continental mansions of the masters and the countless African huts housing their downtrodden labor. In contrast thereto can be seen the hundreds of copper districts within our homeland, peopled by hundreds of thousands of our kin, in comfortable homes and midst surroundings and opportunities befitting our advanced civilization.

Extended argument is surely not necessary to denote that our domestic copper miner can not meet Congo labor competition. Such degrading and minimum cost labor competition can only be checked and eliminated through the medium of an adequate tariff on foreign copper produced by cheap labor.

Due to the vast supply of cheap hydroelectric power available, plus the factors foregoing enumerated, there is no question but that the Katanga reserve can be shovel mined at a cost not to exceed 50 cents per ore ton, or about one-half of 1 cent per pound of copper produced.

The Katanga reserve ore is seemingly an ideal leaching ore. It is estimated that about 95 per cent of the copper is recoverable by this process and should not cost to exceed \$3 per ore ton, or 2.3 cents per pound of copper produced. The cost of freight to New York and additional refining and selling should not exceed 2 cents per pound of copper produced. The aggregate of these cost factors denotes that Katanga reserve copper should be laid down in New York at a cost of about 4.8 cents per pound. In view of the foregoing cost factors it is certainly reasonable to assume that Katanga reserve copper will be delivered in New York at a cost not to exceed 6 cents per pound.

Katanga reserve can easily mine and leach 20,000 tons of ore per day and maintain this rate for years to come. This means an annual production of 900,000,000 pounds of copper which can be delivered at New York at a cost not to exceed 6 cents per pound.

It may be stated that Chile Copper Co. does now shovel, mine, and leach at least 20,000 tons of ore per day. In addition to the Chilean and Katanga copper competition the domestic copper-mining industry is confronted with a probable annual average copper production from Peru aggregating 150,000,000 pounds and from Mexico amounting to 150,000,000 pounds, or a total of 300,000,000 pounds of copper per year. It is also believed that within a comparatively short time Northern Rhodesia and the French Congo, Africa, will begin to produce large quantities of copper.

The assumption is tenable that the domestic copper producer can anticipate within the near future a combined competitive production of at least 500,000,000 pounds of copper per year for years to come from Peru, Mexico, northern Rhodesia, and French Kongo. It is also believed that large additional known copper reserves exist in Chile and Katanga, the tonnage and grade of which have not yet been published. Furthermore, that there are large undeveloped copper areas in these two sections which upon completion of exploratory work will, it is believed, add vast copper poundages to the known reserves.

It has heretofore been stated that the United States porphyry type deposits did in 1923 furnish 34 per cent of the domestic product at an average cost of 10.5 cents per pound, and the high-grade ore districts furnished 22 per cent at an average cost of 9 cents per pound of the total domestic copper production. The remainder, namely, 44 per cent, aggregating 640,000,000 pounds of copper, has a cost production averaging 13 cents per pound. This remainder came from Montana (Butte district), Michigan (Lake Superior district), Arizona (a remainder of 185,000,000 pounds from Morenci, Globe, Miami Copper Co., Sacramento Hill, etc.), California, Tennessee, and all the other States and districts within the United States not heretofore mentioned.

Averaging the aforementioned costs, we find that for 1923 the average cost of copper produced within the United States was about 11.5 cents per pound. In analyzing costs for 1923 it was also found that 65 per cent of same was produced at an average cost of about 13

cents per pound. Summarizing the foregoing discussion, we find that the United States copper-mining industry is confronted with an annual copper production of 1,100,000,000 pounds from Chile and 900,000,000 pounds from Katanga, a certain and definite annual total competitive production of 2,000,000,000 pounds of copper; also that this competitive production can be laid down in New York at a cost of 6 cents per pound.

It was also stated that the 1923 domestic copper production, amounting to about 1,500,000,000 pounds, cost 11.5 cents per pound. Furthermore, that 65 per cent of our total domestic production was produced at a cost of 13 cents per pound. Thus it costs 5.5 cents more per pound to produce all our copper, and 7 cents more for 65 per cent thereof within the United States, than it does to produce copper within the Chile and Katanga areas. This difference in cost is easily understood when consideration is given to the many heretofore enumerated economic factors favoring these foreign areas. In view of this difference in cost, amounting to about 6 cents per pound, why is it that the controlling financial factors within the domestic copper industry have not energetically sought and secured a 6-cent duty on import copper?

In analyzing control factors in the domestic copper mining industry we find two closely related domestic corporations controlled and producing a total of 786,000,000 pounds of copper, this representing 53 per cent of the total domestic copper production for the year 1923. These same two domestic corporations controlled 100 per cent of the Chilean copper production for the year 1923. These two corporations also control 92 per cent of the United States porphyry deposit copper poundage discussed heretofore and all the Chilean reserve copper poundage. The cost of these two domestic corporations was an average of 11.5 cents for their 1923 United States production; and these same two corporations control the large copper reserves of Chile and can lay down in New York 1,100,000,000 pounds of copper per year at a cost of 6 cents per pound. With copper selling at 14 cents per pound at New York, it is evident that these two corporations can only make 3.5 cents per pound on their United States output, as against 8 cents per pound profit from their Chilean mines output. Which of these two channels of profit will be followed and developed to its maximum by the undeniably shrewd, able, and far-seeing business men controlling both? It is evident that sound international commercialism would dictate the securing of an 8-cent per pound profit as against one of 3.5 cents.

Furthermore, there may exist a possible corporate ambition within these two corporations that after merging their equities, thereby directly controlling 85 per cent of the known copper reserves of the world, they will be able to dictate the price of copper. Their tendency may also be in the direction that monopolies usually traverse, namely, one of temporarily lowering prices to destroy the weaker competitors; buy out or reach an understanding with those competitors not easily eliminated, and when this is accomplished they can fix a price for copper products circumscribed only by conscience or economic fear. There will be nothing artificial or ephemeral about this probable international copper corporation. They will definitely control ore reserves of vast magnitude and values, with efficient facilities to deliver copper

products from mine to consumer in volume and at costs beyond competition. Under these circumstances it is evident that they will completely dominate the mining, marketing, and the sale price of copper and its products.

The domestic copper miner and all the citizens residing within and dependent upon the continued and uninterrupted mining of copper within our domestic copper areas view with alarm this dual control of the copper-mining industry of this country and exterior thereto. Congress does not permit the controllers of the domestic lead, zinc, and aluminum industries of the country to import free of duty unlimited quantities of their respective metals from cheap foreign-labor areas, whether they own or do not own these areas. You do not permit domestic financiers in control of manufacturing plants within Europe or the Orient to ship their cheap-controlled products into our home areas free of duty. Neither do you permit the jobbing interest of this country an unlimited right to import free of duty any cheap-labor product from foreign areas.

Is the United States Steel Corporation permitted to import free of duty an unlimited poundage of steel ingots from the cheap-labor areas of Europe or Asia? Would the iron miners of Minnesota, Michigan, Wisconsin, Colorado, and Alabama, the railroad and shipping employees who transport the iron ore to smelting centers, the coal miners who furnish the power and fuel to smelt the iron ore, the employees of the blast furnace and steel ingot centers—would all the foregoing citizens view with complacency the possibility that the rolling mills of the steel corporation be permitted to import duty free an unlimited supply of cheaply produced foreign steel ingots? If a situation such as the foregoing existed, it is a certainty the mining of iron ore in this country would be destroyed. A situation analogous to the foregoing exists within the copper-mining industry of this country. It is of recent origin, yet nevertheless it exists and must be checked promptly if the mining of copper in this country is to remain one of our basic industries.

At the present time the foreign producer of copper can ship an unlimited poundage of copper ingots into this country free of duty. The poundage so imported means an equivalent lessened copper production within our home areas. This cheap foreign-labor copper can be delivered in quantities sufficient to supply all our domestic needs and at a price greatly below our cost of production. This unlimited importation of copper free of duty into this country will destroy our copper-mining industry; in consequence destroy the livelihood of our miners and all those dependent on the continued mining of copper within our domestic copper areas.

Is our country willing to lose the experienced personnel that has taken generations to develop, since the beginning of the copper-mining industry in this country from 1845 to date? If you permit the copper-mining industry of this country to be crushed beneath the juggernaut of personal greed you will find this personnel drifting into these new foreign areas to seek a livelihood. Many of them—executives, engineers, geologists, and skilled miners—have already left our home areas and are using their experience and skill in developing competitive foreign copper areas. It would require many years to replace the experienced personnel we now possess; this personnel which embodies the skill and experience developed during the 80

years we have been mining copper. It is beyond question the most skilled and experienced in the world, and in losing it this country would suffer a distinct economic loss, plus the additional loss of a high quality of citizenship.

The continued importation of cheap foreign-labor copper will destroy our domestic milling, leaching, and copper-smelting industries; great losses will be sustained by the coal, coke, oil, transportation, and supply agencies of our country. Likewise, many communities will be utterly destroyed and many States will suffer large taxation revenue losses in case an unlimited supply of cheap foreign-labor copper is permitted to enter free of duty. These controllers of our domestic and the Chilean copper production also control the brass, copperplate, and copper-wire manufacturing industries of this country. Their viewpoint is seemingly that of a manufacturer, a jobber; not that of a miner. They are desirous of securing so-called raw copper at minimum prices, knowing that high profits are available through the manufactured copper products their plants will produce. They also know that their particular manufacturing plants will always have an ample supply of ingot copper through their control of huge ore reserves. They will exercise great care that an ample tariff schedule be maintained as against imported articles manufactured from copper. This control of ore reserves is undoubtedly the shield behind which they will take refuge, emerging therefrom with profits much greater than would be possible from mine operations alone.

Does the buyer of a copper boiler in this country, paying therefor at the rate of a dollar a pound, begrudge the domestic copper miner his wage amounting to a few cents thereof? Will the consumer of electric current in this country receive the benefit of cheap foreign-labor copper that these controllers of our domestic copper-fabricating industry will furnish? No; these controllers may be expected to secure the maximum possible profits out of their manufacturing activities. The selling price of copper to-day is less than its average sale price for the past 30 years. In comparing the price of manufactured copper products used by the consumer with the selling price of copper you will find the tendency ever to increase and is to-day selling higher than its past 30-year average price. Surely Congress will not continue to permit the domestic copper miner's livelihood to be subjected to the international commercial ambitions of any set of men—not grant them continued power to import duty-free copper from their Indian-labor estates of the Andes or the downtrodden areas of central Africa. The domestic consumer of copper will never receive any proportional benefit from this cheap-labor foreign copper; on the other hand, the domestic copper miner will be destroyed. Surely our country wishes to maintain unimpaired and in continuous operation all the developed copper areas within our boundaries and wishes to reestablish livable conditions therein. This in turn will result in increasing our known copper reserves through increased incentive to explore adjacent mineralized areas.

These dual controllers of our domestic and foreign copper production have spent tens of millions of dollars the past decade in foreign lands to secure control of copper-ore tonnages amidst labor and

economic conditions to their liking. Yet these same interests during the past decade have hardly spent a dollar within our country for drilling and exploring the hundreds of undeveloped potentially valuable copper-stained outcrops contained within our 220 well-known domestic copper districts, which are located in 19 of our States. Even though they could find new ore areas containing average commercially valuable copper reserves in this country, the cost of the copper therefrom would be much greater than their foreign-owned supply. Hence their manufacturing profits would be decreased. Have these dual controllers of our copper-mining industry and Chile ever evinced an interest in our western civic affairs greater than their demand for cheaper wages, lower taxes, and maximum possible profits? How many model and independent communities have they established, and just how keen has been their desire and energy to give employment to the American miner? Their history has been one of intense commercialism, to secure the maximum possible profit out of the human as well as the ore factors involved.

Is it, therefore, startling, in view of the foregoing phases, that the domestic copper miner views with alarm the power these dual controllers possess? He knows full well that his future can only be made secure by Congress placing an import duty on the cheap foreign-labor copper which these controllers are pouring into our country in ever-increasing volume. This citizen with the blood of pioneers coursing through his veins is ever seeking within our homeland for new copper areas and prospecting and mining within those known. This man of courage, brawn, optimism, and intelligence who descends into dangerous depths to labor and shatter the earth's crust in search of copper, constantly bringing forth the metal that forms the millions of circling bands that carry the tidings of human activities between individuals, communities, and countries, that convey the energy impulses that turn our wheels of commerce and converts night into day. Copper, the metal of rare beauty and utility, essential in nearly every avenue of human endeavor and industry. Surely this man of our own blood and kin who is ever seeking this valuable metal for us is entitled to your most earnest and favorable consideration. Surely you will accord him protection, not make an exception of him, not permit our domestic copper miner to remain isolated and pilloried midst the ever-swelling volume of menacing economic barbs shot out of the Andean heights or the Congo jungles.

We find the independent and purely domestic producer already doing things of necessity so that he can exist. He is becoming increasingly unable to pay essential local taxes, the result being less efficient local school facilities and minimum local civic improvements. The tendency also is to employ the cheap and ignorant foreign laborer rather than our own citizens. Our domestic copper districts are on a 60 per cent producing basis and steadily growing worse. Next year it will be still worse and grow constantly more so unless an import duty on foreign-produced copper is made effective. Everything that the domestic producer of copper purchases in the way of supplies is bought in our highly protected home market. This higher cost for supplies, plus higher labor cost, makes it impossible

for him to compete at home or abroad with the low supply and cheap labor cost copper from foreign areas. Is there any way to equalize this inequality, in view of existing governmental policies, other than by placing an import duty on foreign-produced copper?

Commercial efficiency will surely prevail when the shrewd and competent dual controllers of our domestic copper-mining industry and the Chilean copper reserves reach the rim of their anticipated endless long plateaus of maximum manufacturing profits. Whereas yesterday they shipped raw copper ore and unrefined black copper to our domestic smelters and refineries to be converted into electrolytic copper, to-day they are shipping vast quantities of electrolytic copper direct from their Chilean areas; to-morrow they will undoubtedly attempt to utilize the cheap labor and cheaper supplies of their Andean estates and import their copper in fabricated form.

In 1917 Chile imported into this country 4,074,784 pounds of refined copper, representing 0.2 per cent of its total copper importation; and 206,133,975 pounds of copper contained in ore, concentrate, matte, and black copper, representing 99.8 per cent of its total copper importation. In 1923 Chile imported 118,446,874 pounds of refined copper, representing 44 per cent of its total copper importation, and 151,144,975 pounds of copper contained in ore, concentrates, and black copper, representing 56 per cent of its total copper importation. The foregoing shows a 2,200 per cent increase in refined copper imports from Chile in the short space of six years. This denotes a lessened employment of citizens in our domestic smelter and refining plants, a lessened consumption of domestic fuel and power, and in consequence lessened labor employment in these industries; also a decrease in domestic tax revenue through the refining of this copper in Chile instead of in the United States. The foregoing loss to our smelter and refining industries will not alone show a future progressive loss increase, but will undoubtedly continue to develop until the total Chilean copper imported will be in electrolytic form. Chile will naturally expect that her citizens and industries be given the maximum possible benefits from her domestic resources, just as Canada in restricting her pulpwood exports has founded great industries within her areas and increased her manufactured exports of wood pulp, paper, and paper products.

The foregoing losses to our domestic refining and smelting plants and collateral industries further emphasizes the necessity of protecting our copper-mining industry. In protecting it thereby enabling our home areas to supply our home market the total domestic copper consumed will be refined within our country. This means that the citizens dependent on the continued refining of copper within our country will be assured of a continued livelihood and that our refineries will be maintained on an efficient maximum production basis.

Assuming that these dual controllers of our domestic and the Chilean copper production assure us in all earnestness that they will always furnish the domestic consumer with low-price copper products proportional to the low cost of foreign copper contained therein, will they be able to fulfill such a promise when and if made? The Chilean Government will always have the final say as to any and all resources within its boundaries. Through the medium of an

export tax on copper it can dictate the commercial value of its copper reserves. If this tax is excessive it means the utter destruction of its export copper industry. Such an event is not anticipated, although it may happen if calloused political factors desire to acquire the industry at a cheap price for their State. If Chile enacts an export tax, the effect will probably be that Chilean copper will be sold at prices to yield the maximum export tax. This tax, plus all the other costs, will increase the price of copper to be ultimately borne by the consumer. A practice similar to the foregoing is effective to-day in the rubber, potash, and coffee monopoly industries; hence it is not unusual and can not be considered as jeopardizing international relations.

The high-class Chilean has been termed the "Yankee of the Andes." He is an able, courageous, and, above all, an intelligent commercialist. A comparatively few families control the political destinies of Chile, and these same families own vast landed estates. They are interested in maintaining taxes on land at a minimum. Governmental expenses must be met, however; hence their effort is directed in securing the money therefor from sources other than a tax on land.

From what sources has Chile secured enormous revenues in the past? A review of the Chilean nitrate industry is instructive. This is a world monopoly controlled by the Chilean Government. Originally in the hands of optimistic foreign individuals, it has gradually passed into and is now controlled by the State. It has paid hundreds of millions of dollars into the treasury of the State, and to-day is the great source of revenue the Government of Chile has. With an appetite whetted for decades by foreigners' dollars flowing in from the nitrate-industry monopoly, do you believe that the Chileans will hesitate to secure the maximum return possible out of any other monopoly—for instance, the copper monopoly?

For that matter the exigencies of our Belgian friends in political control of the Katanga copper reserves will undoubtedly also find that an export tax on Katanga copper will be a lucrative source of income, and will welcome the possibility of delivering high-priced copper to us when and if they share in this monopoly.

It may be stated as a fact that the domestic consumer of copper, when dependent on foreigners for copper, can not accept the word or assurance of an individual foreigner, or one of our own citizens, as binding on the governments controlling these reserves. Individuals or corporations possess no delegated powers which governments must respect; hence their promises are mere statements and are unenforceable. It is very certain that the domestic consumer of copper, when solely dependent on foreigners for his supply of copper, will pay whatever is demanded. It also seems certain that the average price will be much higher than he would have had to pay for domestic-produced copper had our copper-mining industry been permitted to survive. Fortunately our domestic copper-mining industry is still functioning, and the foregoing assumed situation will never confront our domestic consumer if we secure at once an import duty on foreign-produced copper, thereby enabling our industry to survive and continue to meet all our domestic needs. It should always be remembered that our own industries are always controllable under the provisions of our laws and their increments of

profits taxable to aid our civic institutions. Bearing this in mind, a prosperous domestic copper-mining industry can not be other than beneficial in every possible way to our citizenship and country.

There has been a hectic, feverish stock-exchange activity of the stocks of the corporations controlling the Chilean and Peruvian copper reserves. Their stocks have mounted higher and higher while the stocks of our independent and purely domestic producer of copper are listless. The speculators are anticipating huge profits from these foreign copper areas. Is there a better criterion denoting the huge anticipated profits from these foreign reserves than this stock-market increase? All of this increase is based on the assumption and belief that these foreign areas will undersell the domestic producer of copper, not only abroad but also in our local market, which is greater than all of the rest of the world combined. When this competition reaches its apex our domestic copper-mining industry will be destroyed. When the speculators' profit reaches a maximum, the loss to our copper-mining industry dependents will be complete. It is unbelievable that the citizenship of this country will stand by and permit the sacrifice of the livelihood of some 500,000 citizens directly and indirectly dependent on the continued mining of copper within our home areas, and thereby solidify the speculative profits of those agencies who are planning and anticipating the destruction of our copper-mining industry. When the true situation is known, Congress will accord justice and equity to those citizens through the medium of a tariff on import copper, thereby saving the domestic copper-mining industry and the livelihood, homes, and future of the citizens dependent thereon.

How is it tenable or fair to deny and except the miner of copper production from foreign low-cost copper when protection has been accorded the domestic miner engaged in the lead, zinc, iron, and aluminum metal industries? It certainly can not be argued that copper is less valuable proportionally in every avenue of our industrial life than any of the foregoing metals. If our industrial body be skeletonized with steel, its helplessness would be manifest without its electrical nerve system composed of copper. Our industrial body requires copper in addition to steel and other metals in order to function properly, as much so as the human body requires not alone food but moisture and air as well to sustain its activities.

Our country is very active industrially, and economic conditions as a whole are excellent. The present domestic consumption of copper per capita is the greatest in our industrial history. Yet our domestic copper-mining industry is in a state of uncertainty; despondency is the rule, not the exception. The citizens within the domestic copper areas are surcharged with anxiety and fearful of the future. Surely this is a strange economic situation. When the domestic consumption of copper is at its maximum the copper-mining citizens dependent thereon are in the depths of despair.

The cause underlying it all and directly responsible therefor is the tremendous increase in foreign copper production; the ability of the foreigner to produce a volume of copper greater than our own and at vastly less cost. The buyers of copper know this, and during the present transitory stage of cheap foreign copper have hammered the price of domestic copper below its average 30-year price. These

buyers will undoubtedly secure still cheaper copper, possibly down to 10 cents per pound, when the ruin of our domestic copper-mining industry will be complete. When domestic competition has been eliminated and domestic mines and plants abandoned, the buyer or consumer of copper will have to pay monopolistic prices for it.

An import duty on copper is the only remedy that will correct the present anomalous existing economic situation besetting our copper-mining industry and permit the citizens thereof to enjoy prosperity proportional to that enjoyed by our citizens engaged in the protected lead, zinc, iron, and aluminum industries.

An argument advanced by those in favor of copper remaining on the free list is that our future domestic requirements of copper demands that we do not interfere with and thereby interrupt the efficient development of foreign competitive areas. Is this condition peculiar to the domestic copper-mining industry alone? Does not an analogous situation exist in all the other industries of our country? Following this argument to the end means letting down the bars of protection and admitting free of duty every product produced or manufactured throughout the world. The time, and the only time, to permit the unlimited importation of foreign copper duty free is when our domestic copper reserves are definitely and positively known to be exhausted. Our present known reserves will last for decades, and there are a thousand copper-stained hills within our home areas still awaiting detailed exploration. These will be explored and will surely add vast additional copper reserves, as hills in the past have yielded to those of the present, if the domestic prospector, miner, and producer can be protected against the destructive flood of cheap foreign labor copper.

The only incentive to develop our home copper area rests with our own citizens—those dependent thereon. We can not expect foreign copper controllers to aid us in exploring any new domestic copper areas. The driving, urging desire to do so rests with those of our citizens dependent thereon and desirous of maintaining home and progeny midst surroundings dear to their heart, within their homeland and in contact with their own citizenship.

The history of salvaging the low-grade sand and magnetite iron ores of Minnesota and the low-grade lead and zinc ores of our domestic areas afford excellent examples of where a dependent citizenship added vast reserves to our domestic mineral resources. This was done because the cheaper competitive foreign metals were excluded under the wise and beneficent provisions of our tariff law.

The consuming citizens of this country do not need, nor would they expect to receive any benefit from the small additional amount that a satisfied copper miner will receive through the continued production of copper within our home areas any more than they denied the increment of increase to those of our citizens engaged without our present protected industries.

Constant propaganda has been broadcast during the past two years to convey the impression that to-morrow conditions will be better. Germany or some other European nation will soon be able to buy our domestic copper, etc. We can not now compete in the European markets with the large volume of low cost foreign-produced copper, and even if we could for the moment where is the Andes Copper Co. going to sell its 200,000,000 pounds annual output when it adds its

quota a few months hence to the ever swelling Chilean copper stream? Will it market the output in this country or in Europe? Even if Germany increased her per capita consumption by one-half, her additional requirements could be more than satisfied by this new and latest foreign increment of increased production. If the European copper market is so valuable, let the foreign producer of copper sell his product there. The independent and purely domestic copper producer is satisfied with selling his product in his home areas. He is entitled to his home market for his product. Grant him this right as you did citizens engaged in the protected steel, lead, zinc, and aluminum industries.

The argument is advanced that our domestic copper mining industry does not need an import duty on foreign produced copper, for the reason that our domestic industry must export copper in order to mine at a profit. Our domestic copper producer can not compete with the cheap cost foreign-produced copper which has come into the world's market the past few years. Their enormous reserves and cheaper costs of foreign copper make it impossible for the domestic producer to retain former markets if the foreign producer is in need thereof. The result has been a decrease in our exports and a lessening of our domestic capacity production. If our domestic producers could compete, they certainly would not be selling two-thirds of their production, either locally or abroad, very nearly at cost. Good business would dictate that they retain this poundage in the hope that the future would afford a reasonable profit. However, these high-cost domestic producers must retain their personnel, keep their mines in repair, and pay taxes. All this overhead must be met and they are striving to secure it from ore reserves. If they should suspend all mine operations, they would endanger their equities. Hence, they are continuing operations hoping that something will transpire to relieve their dilemma. Their hope the past four years has been that the price of copper would advance to a point where they could regain their losses and continue profitable operations. However, their hopes have not been realized and they are desperately striving to hold their equities intact. Their plight is growing constantly worse, and the only certain relief for them is to secure control of their home market by excluding the low cost foreign-produced copper.

A review of our copper-export statistics of 1923 with those of a few years ago is interesting, and the following detail is submitted.

In 1913 we produced 1,224,500,000 pounds of copper; our domestic consumption was 812,000,000 pounds, or 67 per cent thereof. This left 412,000,000 pounds of domestic copper, or 33 per cent, available for export.

In 1923 we produced 1,435,000,000 pounds of copper; our domestic consumption was 1,300,000,000 pounds, or 93 per cent thereof. This left 135,000,000 pounds of domestic copper, or 7 per cent, available for export.

An analysis of the foregoing shows that in this 10-year period our total production increased 17 per cent; our domestic consumption increased 60 per cent; and that our copper exports decreased 67 per cent. This analysis denotes that our domestic consumption is approaching and nearly equaling our domestic production and that our copper exports are decreasing and approaching a minimum.

The foregoing is somewhat indicative of the change that has taken place within our copper industry the past decade.

During this decade the enormous areas of South America and Africa have been developed, and their rapidly mounting copper production has already destroyed our control of the foreign copper market. This stream of foreign low-cost copper is increasing rapidly and will not alone control all the foreign markets, but our own as well, unless an import duty on foreign copper is made effective.

An analysis of existing costs denotes that the foreign-produced copper can be delivered at New York at 6 cents per pound, whereas our domestic cost is about 12 cents per pound. This 6 cents profit differential in favor of foreign-produced copper plus the enormous foreign reserves indicates positively that domestic copper can not compete with the foreign product either at home or abroad. The export statistics quoted foregoing are corroborative of the foregoing statement and prove that our days are over as a world's copper competitor.

The domestic copper-mining industry must rely on a protected home market in disposing of its products, just as the protected lead, zinc, iron, and aluminum industries must do in disposing of their metal product. In so doing our copper-mining industry may expect to secure the same degree of wholesome prosperity that these industries enjoy.

Copper is one of the metals of vital necessity in caring for our industrial needs. Certainly it will be beneficial to our Nation to retain any surplus in excess of our industrial necessities; once exported it will be lost to us forever.

In consequence, it may be stated that no commercial necessity will exist necessitating our domestic producers to export copper in order to mine at a profit when an adequate tariff is made effective. That adequate profits will be available to those engaged in the domestic copper-mining industry; also place it on a fundamentally solid basis through control of its home market; likewise hold in reserve for future national necessities our former exports thereof.

Further discussing the contention that reasonable profits are not available to the domestic copper producer through solely supplying the copper necessities of our country, a metal industry, namely, the iron industry, affords instructive parallel example as to probable profits available. It will be remembered that our country produces about 60 per cent of the steel production of the world and about 50 per cent of the world's copper production. The gross value of pig iron produced in 1923 was more than five times greater than the gross value of electrolytic copper produced during that year. Our domestic steel industry is not an exporter of steel ingots—is accorded rigid tariff protection, and is one of our continuing highly prosperous metal industries. The United States Steel Corporation controls about 60 per cent of the iron production of this country and is not alone one of the richest and most powerful of our domestic corporations, but also one of the greatest in the world. Its major earnings have been solely secured by supplying a portion of the iron necessities of our home areas, said iron being mined solely from domestic iron-ore deposits. The Steel Corporation is not an exporter of steel ingots. It can not compete abroad with the cheap-labor iron products

from foreign areas. Nevertheless, it has enjoyed unexampled prosperity in the past and does now secure excellent earnings through solely selling its products within our home market. Likewise the employees of the Steel Corporation and the domestic communities in which it operates have enjoyed and do now enjoy exceptional prosperity. The annual gross earnings of the Steel Corporation alone about equals the total gross value of our annual domestic copper production.

If our generous citizenship is willing to reward the Steel Corporation for efficient services in the iron industry by according it a sum about equal to the gross value of our domestic copper production, it is reasonable to assume that they will grant the copper producer an equivalent proportional reward which he will be entitled to for rendering efficient service in supplying the vital copper necessities of our country. It is self-evident that through securing this proportional reward the domestic copper producer will enjoy unusual prosperity. When the domestic copper producer is prosperous it means a prosperous and contented copper miner and prosperity for all the others dependent on the copper mining industry.

To digress for a moment, attention will be directed to a fundamental difference between the policy of the United States Steel Corporation and the crystallizing policy of the incipient International Copper Corporation. The financiers who formulated and made effective the Steel Corporation did this on the premise of securing iron for the corporation rolling mills solely within our home iron areas. The political, judicial, and therefore the brilliant industrial history of the corporation would have been vastly different had it attempted to secure steel ingots for its rolling mills from the cheap-labor areas of foreign lands. Hence an international copper corporation can find no optimistic precedent applicable to their ambitious international maximum-profit attempt through securing cheap, foreign-labor copper ingots for their domestic rolling mills upon reviewing the industrial history of the steel corporation. It can not expect the same degree of immunity accorded the Steel Corporation which, although unusually prosperous and a virtual monopoly, nevertheless has rendered service to our country through securing its total iron supply within our home areas and thereby aided in developing our domestic iron industry and maintaining domestic citizenship and communities.

Assume that a state of war exists and that we are dependent on South America and Africa for our supply of copper. Even though the nationals controlling this foreign copper permitted exportation thereof, it is probable that the enemy, through submarines and aerial activity, would prevent delivery of copper to our ports. If such a condition confronted us, where could we secure an ample supply of copper to care for our war necessities? We could secure some copper by requisitioning what might be termed nonurgent electrical, telephone, and industrial poundage. Whatever poundage was so seized would surely lower the war efficiency of the foregoing industries. The only efficient recourse would be to try and secure sufficient copper from our domestic copper areas, cost what it may. In striving to do this you would have hurriedly to create a personnel in lieu of our existing one embodying 80 years of experience.

You would have to manufacture new hoists, pumps, compressors, and an infinite detail of mechanical accessories; sink shafts, run underground workings, build connecting railroads, new milling plants, smelters, and refineries. Years would be required to re-create our supposedly destroyed copper industry to enable it to meet our war necessities. Hundreds of millions of dollars plus years of time would be spent in the foregoing effort to rehabilitate our copper industry. Our building of aircraft during the World War affords an instructive parallel example. It is undeniable that a continuance of our domestic copper-mining industry unimpaired and efficiently equipped will be of incalculable aid to our national defense if war should ever overwhelm us.

Our domestic copper-mining industry can only be maintained on a constant, thoroughly maximum efficient national defense basis by preventing foreigners importing an unlimited poundage of copper duty free, the continuing effect of same being the certain and utter destruction of our domestic copper-mining industry. Congress has, through the medium of a protective tariff, saved the economic lives of nearly all the industrial brotherhood within our Nation. It prevented the economic life of our iron miner from being destroyed by the iron machete of cheap foreign labor areas. It prevented the economic skull of our lead miner from being crushed by lead billets wielded by foreign economic foes. Why, then, not accord equivalent justice to their brother, the copper miner, and grant him protection—save his economic life from the copper arrow of the Andes and the copper spear of the Congo?

Each economic child of our country is entitled to equivalent care, opportunity, and protection. Equal devotion should be bestowed on each unit of our economic progeny. In protecting the copper miner you will not alone accord justice and equity, but likewise comply with the economic law that has made our country the mightiest and the most contented industrial Nation in the whole recorded cycle of human activities. The miners within the copper areas of our country dependent upon the continued and uninterrupted mining of copper have wives, children, communities, and States within their keeping. They have ambitions to care for their proportionate burdens of home and national welfare—just as desirous of living self-sustaining, independent, useful, and patriotic lives as did their eastern forbears or those of their brothers engaged in all the protected subdivisions of our industrial activities.

They plead with you to heed their cry for protection of all they hold dear in life. In granting them protection you are aiding the progeny of the hardy pioneers who initiated the copper industry within our country nearly a century ago midst the hardships and dangers of Keweenaw Peninsula. You will also save the livelihood and future of the descendants of those pioneers who established and maintained the outposts that initiated and developed our western areas. In aiding these citizens you will also provide for a continuance of those agencies that have in the past brought forth into our channels of commerce inestimable values of copper and associated metals. Aiding them means an uninterrupted replenishing of our copper necessities not alone in time of peace but in war as well. In aiding them you will give stimulus and aid to create wealth within a thousand of our unexplored hills. The unfolding of treasure therein will afford live-

lihood, fortune, and happiness to hundreds of thousands of our citizens of the present and the generations to come.

The protection so accorded will emphasize the minute care you give to every subdivision of our industrial life, that the continuing wisdom of enfolding within the mantle of protection each and every one thereof is deemed not only essential nationally but likewise is an equitable distribution of justice. You will in the years to come realize, feel, and cherish a degree of patriotic happiness most satisfying to mind and heart that through according protection to these sons of pioneers you retained this citizenship and their progeny within our country. You will realize that you followed the path of justice and patriotism when you saved the copper-mining industry within our country and all those communities dependent thereon. You will realize that compliance with the ages old saying, "Our first duty is to care for our own," was not only a parental legislative duty but likewise yielded undreamed of compensation to our Nation for the care and protection so bestowed.

Permit the copper miner to reenergize the dying copper industry of his homeland; do not refuse his plea for protection and thereby send him forth to foreign areas to seek a livelihood; do not condemn him and his progeny to labor in strange lands with aliens of varying types and intelligence.

Heed his cry for justice and equity! Grant him this, as you have millions of his brothers in all the other avenues that traverse our industrial life.

SECOND SPEECH, JUNE 26, 1926

MR. CAMERON. Mr. President, I desire to have read an article appearing in the April 24, 1926, issue of the Engineering and Mining Journal-Press, a technical journal published in New York City.

The PRESIDING OFFICER (Mr. Robinson of Indiana in the chair). The clerk will read.

The legislative clerk read as follows:

SENATOR CAMERON BLOWS OFF

Senator Ralph H. Cameron, of Arizona, illuminates the April 9 issue of the Congressional Record with an extended appeal for a tariff on copper, a part of his address being reprinted in the last issue of the Engineering and Mining Journal-Press. Careful reading of the Senator's complete speech can not but impress one with the speciousness of his arguments. He dwells at length on the immense deposits of copper in Africa and South America, pointing out their alleged low cost of production as against the high cost of getting copper from the comparatively limited and low-grade deposits of the United States, where steam-shovel mining, one gathers, is practically unknown. The Chilean producer, he says, can deliver his copper in New York at an average cost price of 6 cents per pound. If he refers to the Chile Copper Co., the actual cost was 8 cents per pound, not including depletion, according to the latest annual report available, that for 1924. Katanga, he avers, should soon be able to deliver its copper in New York at a cost of 4.8 cents per pound. This will certainly be quite a reduction from the actual cost, which he gives for 1924, which was 10.4 cents per pound. "It is evident," he says, "that Katanga copper can be laid down in New York at less transportation cost than our domestic copper." Here, again, he must have vast economies in mind, for at present it costs something like 3 cents per pound to get Katanga copper from the smelter to the New York refinery. The cheap native labor, of course, receives attention. It would hardly be fair to readers of this journal to keep the following passage from them:

"There are millions of Belgian Kongo negroes available at wages that will not exceed 20 cents per day. The Kongo, with its reeking and soul-harrowing memories of enslaved labor, its jungle trails paved with countless sighing souls

and trodden by the millions of forced tribute bearers of ivory and rubber in the past, are now to be used to gather copper for export to our domestic market.

"One can visualize the malachite green and azurite blue of the Katanga ore shot through with the cuprite red from the straining, sweating, and soul-racked bodies of impressed labor. On the one hand we can see the few palatial continental mansions of the masters and the countless African huts housing their downtrodden labor. In contrast thereto can be seen the hundreds of copper districts within our homeland, peopled by hundreds of thousands of our kin, in comfortable homes and amidst surroundings and opportunities befitting our advanced civilization."

Later on, Senator Cameron fears that "two closely related domestic corporations"—meaning probably, Anaconda and Guggenheim Bros.—controlling 53 per cent of the United States production and all of the Chilean production, will dominate the world and close down the United States high-cost mines and produce a maximum quantity to fill world wants from Chile. "There may exist," he says, "a possible corporate ambition within these two corporations that after merging their equities, thereby directly controlling 85 per cent of the known copper reserves of the world, they will be able to dictate the price of copper. * * * The domestic copper miner views with alarm the power these dual controllers possess."

"The continued importation of cheap foreign-labor copper will destroy our domestic milling, leaching, and copper-smelting industries; * * * likewise many communities will be utterly destroyed." It is strange that no such effects are beginning to be noted; copper production from United States mines has been steadily gaining since 1921; present production is way beyond the pre-war level and is not far behind the war-time peak.

The Senator is clever in the choice of some of his statistics. "In 1913," he says, "we produced 1,224,500,000 pounds of copper; our domestic consumption was 812,000,000 pounds, or 67 per cent thereof. This left 412,000,000 pounds of domestic copper, or 33 per cent, available for export. In 1923 we produced 1,435,000,000 pounds of copper; our domestic consumption was 1,300,000,000 pounds, or 93 per cent thereof. This left 135,000,000 pounds of domestic copper, or 7 per cent, available for export."

So far, so good; but in 1924 the exportable surplus of the United States was much higher, being slightly over 400,000,000 pounds, and in 1925 it was more than 500,000,000 pounds, or well over what it was in 1913. Here, after all, is the essential fact. Admitting all that the Senator says is true, his remedy for the situation—a protective tariff—will be futile so long as domestic copper producers find it profitable to mine more copper than the country needs. Secure a copper tariff if you can, Senator; it will do no harm and the producers perhaps deserve help more than the lead producers do, for example, who have one. But don't fool the copper miners into thinking that it is going to help them any under present conditions.

Mr. CAMERON. Mr. President, the reason for my desiring to call the attention of the Senate to this article is that, due to the supposed heretofore high and unbiased standing of this publication in the realm of mining, its conclusions or attitude as to policies and persons are supposedly authoritative and unbiased.

This publication has seen fit to indulge in sarcasm and biased criticism, as I shall point out, in reviewing the subject matter of the remarks I made in the Senate on April 9, 1926, in discussing the necessity for a 6-cent tariff on foreign-produced copper.

This publication occupies a rather monopolistic field in the realm of mining engineering publications; hence, the only effective way I have of refuting its criticism of me is to review and answer same on the floor of the Senate.

My reason for not discussing comparative copper production statistics subsequent to the year 1923 was due to the nonpublication of such detailed copper production and consumption statistics and data by the Bureau of Mineral Statistics and Resources, Department of Commerce, prior to the delivery of my remarks on the copper tariff in the Senate April 9, 1926. An important basic domestic industry,

such as the domestic copper mining industry, covering 80 years of industrial activity, should only be analyzed and discussed by reviewing data pertaining to same compiled and published by a competent, an unbiased, and a most reliable agency.

Such an agency or assembler of statistical information pertaining to our domestic copper mining industry, namely, the Bureau of Mines, Department of Commerce, did not issue its annual bulletin entitled "Copper for 1924" until June 2, 1926; hence, no fair criticism could be directed against me if I remained within the realm of definitely known and reliable data.

However, the statistics for copper just issued by the Department of Commerce for the year 1924 gives the domestic production as 1,634,249,192 pounds of copper; the consumption as 1,354,742,564 pounds of copper—this left 279,506,628 pounds of copper, or 17 per cent of the total production, available for export, this being much less than the "slightly over 400,000,000 pounds" mentioned in the foregoing article. Presumably, their quota of exportable surplus for 1925 will also be modified when unbiased and reliable domestic production and consumption data for 1925 is available.

The difference between the excess copper produced and the copper consumed domestically for the five-year period 1920–1924 (see p. 689, U. S. Statistical Abstract) equals 9.03 per cent of the total production. This is the percentage production available for export. It will be noted that it agrees very closely with the 1923 percentage ratio which is so caustically criticised foregoing.

I reiterate that whereas we exported up to one-third of our total copper production prior to the World War, our exports now are approaching a minimum, and for the five-year period 1920–1924 they have only averaged 9.03 per cent. In other words, the domestic consuming market during this period was nine times more valuable to our domestic producer of copper than the export market.

The average price of copper for the last five years equals 13.7 cents. Hence a 10 per cent increase, namely, 1.37 cents, or a price of 15.07 cents, would not alone have accorded greater mine profits, but likewise have saved for probable future profits the past five-year exports.

Furthermore, when consideration is given to the fact that the average price of copper for the past 30 years, 1896–1925 (this period embraces 90 per cent of total copper production, 1845–1925), equals 16.7 cents, the economic loss to our domestic copper-mining industry dependent is greatly magnified.

Attention will also be called to the fact that, based on the general commodity index increase factors (p. 306, U. S. Statistical Abstract, 1924), domestic copper should be selling in excess of 20 cents per pound, and not 13.7 cents, further emphasizing the tragic losses endured.

In view of the foregoing it may be asked why this domestic mining journal has not bent its talent and energy toward aiding the domestic copper-mining industry, voicing indignant protest against the existing discriminatory conditions, giving wide publicity to the foregoing factors of depression?

I presume I was also "clever" in the choice of the statistics I voluminously submitted as to the several times larger copper reserves, higher-grade ore, lower transportation and supply costs, like wise the

cheap Indian and negro labor available when comparing South American and African copper reserves with our domestic poundage. A technical, unbiased, critical review of the statistics, I submit, is in order. A cheap, cynical, sneering comment, as the article denotes, does not refute the data outlined in my remarks.

On the premise that no domestic industry is entitled to protection if it has an "exportable surplus," as I infer from their criticism, evidently the domestic steel industry should be penalized through the removal of the tariff as against imported steel products, based on the plea that they always have a surplus in excess of domestic requirements. At times they produce at maximum production capacity, at other times only one-half thereof. Their average production rate since the tariff was established will average about 80 per cent of capacity production. Nearly all protected domestic industries are confronted with these variations of capacity production; nevertheless they have enjoyed uniform prosperity.

Even though a protected domestic copper-mining industry does traverse a variable cycle of capacity production it can expect the same degree of comparative wholesome economic prosperity enjoyed by our present protected varying capacity metal industries.

There is sufficient industrial intelligence within our domestic copper-mining industry, upon receiving protection, to make effective the same economic policies which were applied in effectuating prosperity within our present protected metal industries.

The copper miner is entitled to the same economic treatment accorded miners in the other protected metal industries. He believes that protection will cure his economic ills and his belief should be respected.

The copper miner is at least sincere in his appeal for protection. The forces opposing this appeal certainly have not the economic welfare of the domestic copper miner at heart, to say the least.

The cynical criticism indulged in by this technical journal against me for striving to secure protection for the domestic copper miner goes far afield from the realm of unbiased. The venom displayed by it is emphasized when it indulges in ridicule and deviates from an analytical detailed rebuttal of the arguments I submitted.

The arguments I advanced should be viewed from the standpoint of aiding our domestic copper miner, not from the angle of international commercialism.

Of course, we of the so-called raw-resource West can well realize that the home-town journal of the dual controllers would rush to their defense. The importing-exporting atmosphere of New York City is not conducive to acquiring an unbiased equitable viewpoint as to protecting our domestic copper miner.

The domestic copper miner will have to traverse the road of opposition beset by these importing forces before he secures protection paralleling the opposition these forces directed against many of our present protected industries.

I presume a different viewpoint than mine would be inspired as to "Katanga labor" from reading on page 20, January 2, 1926, issue of the Engineering and Mining Journal-Press the following:

While sitting at dejeuner at the Bruxelles Hotel one day we saw a hundred native prisoners, clad in striped yellow-black jerseys, file past in the street; they were chained in groups of six, after the style in which slaves used to be driven across the continent.

Surely my criticism of "Katanga labor" is no more illuminating or tragic than the words of their own contributing editor, who recently returned from Africa.

Evidently the Journal was not able to refute the greater comparative rail-haul cost for our domestic copper delivered in New York when compared with the lesser equivalent rail-haul cost of Katanga copper to New York upon completion of the Benguela Railroad, as set out in my April 9 remarks.

Likewise, they failed to point out that the Katanga ore could not be shovel-mined and leached at the per pound costs, as stated by me. If these costs are in error, their array of statistical experts should be able to controvert same.

I presume the domestic copper miner must sit complacently by until the Benguela Railroad is completed; likewise calmly await installation of improved metallurgical details before petitioning for protection—wait until the Andes Copper Co. production invades our domestic market; wait until the rest of the South American producers expand their production facilities.

Thus should our domestic copper miner await this catastrophic economic deluge, as pacifists would have us await invasion before organizing a national defense.

Why does not this domestic technical journal give thought toward solving the problems besetting our domestic high-cost copper areas, extend encouragement to develop our latent copper resources, show a sympathetic interest in behalf of our domestic copper miner?

The least they should do, in view of their Americanism, would be to maintain an attitude of neutrality—not indulge in journalistic abuse against those who are striving to maintain one of our basic industries.

The criticism they direct against a copper tariff to-day parallels their criticism of a few years ago against the copper miners, who were then desperately striving to make commercially available the porphyry copper deposits of the West.

The Engineering and Mining Journal in their issue of May 27, 1899, extended the following degree of sympathy to those who were developing the Utah Copper Co. deposit:

It would be impossible to mine and treat ores carrying 2 per cent or less of copper at a profit under the existing conditions in Utah. * * * On the company's own showing, therefore, the more ore it has of the kind it claims the poorer it is.

Their cynical critical prophecy then regarding one of our present greatest domestic copper mines is quite similar, not alone in tone and flippancy, but likewise in deductive finality, with their present-day criticism of the copper tariff.

I challenge the unbiased viewpoint of this journal when the question of protecting our domestic copper miner is involved. Their viewpoint is easily discernible by reading the editorial statement on page 673, April 24, 1926, issue, from which I quote the following:

Undoubtedly, as we have often pointed out editorially, mining must henceforward be visualized as an international affair. The foreign subscribers to Engineering and Mining Journal-Press have increased without solicitation till they now number about one-third of the whole. The world will be none too large in the future for the mining industry, and operator, metal seller, and buyers, and equipment manufacturer alike must consider their industry and their business in this light.

Surely the foregoing denotes unmistakably an international commercial viewpoint way beyond that of a "tariff for revenue" advocate. It is directly opposed to the policy of protecting our domestic industries. This policy of internationalism means letting down the bars of protection and admitting free of duty any and all products from the cheap-labor areas of foreign lands. Surely the advocate of such a policy can not be considered an unbiased critic when discussing protection for our domestic copper miner.

Their viewpoint can be termed "economic communism" and in its concepts parallels the doctrine of political communism as advocated by Bolshevik Russia; the end of both leads to disaster for the human element involved.

Realized the foregoing viewpoint of the Engineering and Mining Journal-Press, the domestic copper miner will readily understand the motive actuating this internationally minded publication in directing their attack against me, and in consequence against all those who stand for an import duty on foreign copper produced by cheap labor.

Mr. President, I am also desirous to-day of submitting some observations as to certain specific phases pertaining to our domestic copper-mining industry. These phases, which I shall reanalyze in part, were discussed in the remarks I made April 9, 1926, upon this floor; but, due to certain recent criticisms indulged in by those opposed to a copper tariff, it appears desirable to amplify same.

In the volume of criticism directed against the many arguments I submitted denoting the absolute necessity of protecting our domestic copper-mining industry, the most tenacious and, in fact, the only basic, definite rebuttal argument seriously advanced was that our domestic copper-mining industry must export copper in order to survive industrially.

These critics of a copper tariff have never attempted to prove that our domestic copper can successfully meet the competition abroad of foreign-produced copper which can be marketed, without loss, at a price one-half our domestic cost; neither have they discussed the menace now confronting the domestic copper producer who stands helplessly by unable to meet the competition of the peon labor foreign-produced copper which has now invaded our domestic market as well. Why do not these champions of free-trade copper point out in specific detail the unique reversible economic method whereby our higher-cost domestic copper is to displace the lower-cost foreign-produced copper not only abroad but within our domestic market as well?

While revealing the mystery of the foregoing economic paradox, they should also emphasize that no economic menace can confront our domestic copper producer even though his known domestic copper poundage is only 40 per cent of the foreign-owned supply.

An analysis should also be submitted by them denoting that the 50 per cent higher grade of the foreign porphyry copper ore reserve, when compared with our domestic porphyry grade, is a detriment, not a benefit, from a lower-cost standpoint.

They should also attempt to prove that the lesser transportation costs for ingoing supplies and outgoing copper enjoyed by the foreign copper producer—due to a less equivalent mileage haul plus utilization of cheap foreign bottomry—when compared with our domestic copper transportation costs, are likewise a handicap.

However, the imagination visualizes that their maximum urbanity and pleading supplication will stand revealed when they present to our domestic copper miner the rare benefit which will ensue to him through embracing internationally, both in the spirit of genuine friendship as well as untainted commercialism, his economic brother of the Andes and the brother from the Congo jungles!

As an Arizonian, I can well picture the dynamic end of it all when the foregoing plea to placate our unprotected copper miner is presented. It is the last presented aforegoing and it will always be the last touched upon by a champion of free-trade copper—for no amount of specious flattering sophistry will ever convince our domestic copper miner that he should be made an exception of—that he is not the equal of any and all his economic brothers, numbered by the millions, within our present protected industries.

EXPORTABLE SURPLUS

It should not be necessary to refute the premise that no domestic industry is entitled to protection for the reason that it may have an exportable surplus. If this theory were sponsored by protectionists, they should immediately place on the free list the products of our exporting wheat, cattle, hog, steel, zinc, lead, aluminum, brass, and fabricated copper industries, only to name a few thereof.

It is well known that one of the basic tenets of protection is to secure a fair, livable price for our product within our home market, regardless of whether we have or do not have an exportable surplus.

No one can question, either, that even though a domestic industry is protected within its home market, nevertheless it is just as able to export its product as under a free-trade policy. Many of our present protected industries export any surplus they may have; there is no reason why a protected copper-mining industry can not do likewise if they so desire.

It is also well known that nearly all of our domestic industries are overwhelmingly dependent upon the protected home market and in consequence attempt to regulate their productive capacity to harmonize with domestic demand.

The metal industries can rigidly regulate their productive rate—the agricultural industry can not regulate, within foreseen limits, their productive rate—hence they are pleading for special protective legislation.

None of the exporting protected domestic industries are clamoring for free trade. Each and all of them are vitally interested in seeing that the tariff is made 100 per cent effective so far as their particular products are concerned.

The steel industry is protected, yet it varies exceedingly month by month, year by year, as to its productive capacity. In times of maximum demand it operates at full capacity; at other times, as in 1920, down to a 40 per cent basis. For the past 25 years it is estimated that the domestic steel industry has operated on an 80 per cent average maximum capacity basis; yet with all these variations nevertheless the steel industry has enjoyed uniform prosperity during that period. Despite a 100 per cent increase in transportation rates, likewise a 100 per cent wage increase, also a large tax increase, when comparing present-day costs with 1913, nevertheless the steel industry is enjoying

excellent earnings due to receiving 50 per cent more for its product to-day than it received in 1913.

The tremendous earnings of the Steel Corporation, secured through supplying the vast industrial needs of our country, were obtained by fixing a price sufficient to compensate it for varying domestic consumption; likewise these rates may have embodied within them any theoretical losses it might assume to have suffered by not being able to compete abroad.

All other protected metals are selling much higher than their past 30-year average price. It certainly is rigidly fair to assume that copper, when protected, will at least sell at its average price, and I predict, when protection is rigidly effective, that it will sell in excess of this average.

I submit confidently that the domestic copper-mining industry, upon receiving adequate protection, will as surely regulate its productive capacity to harmonize with domestic demand and essential profits with the same degree of commercial efficiency exhibited by the paralleling present protected metal industries. The industrial intelligence within the domestic copper-mining industry is at least equal to that within any of the present protected industries. It should not be charged with lack of acumen now for not seeking and securing protection in 1922, for, as will be shown subsequently, this is directly attributable to subversive control factors then as well as now, in control of our domestic copper-mining industry.

Some subversive factor must certainly also operate within the "exportable surplus" zone likewise, as the following analysis denotes.

The domestic copper mining industry is now, and has been for five years past, selling its product 18 per cent below its past 30-year average price. Its exports during the five-year period, 1920-1924, according to 1924 United States Statistical Abstract, have only averaged 9 per cent of the total production.

If the copper producer had obtained the average 30-year price of 16.7 cents instead of the 13.6 cents actually received, he would have secured the same amount of money for 81.4 per cent of this total five-year production.

This denotes that the copper producer made a forced economic gift of 18.6 per cent of the products of his industry, shared equally not alone by his economic domestic brother but by foreigners as well.

State or international communism does not even demand this degree of personal sacrifice; they at least advocate a reciprocal exchange of benefits!

Champions of free-trade copper have most zealously sponsored "exportable surplus" as the main issue involved.

The real issue involved, however, is solely one of absolute "free trade" as against "equitable protection," whether our domestic copper miner shall be impaled by the economic Congo spear, pierced by Andean arrows, or shall an economic barrier be erected to protect him from these foreign economic foes?

There is no "tariff for revenue" or "exorbitant tariff" or "tariff revision" issue involved. The issue is solely one of stark-naked "free trade" against a livable protective tariff for our copper miner, whether 500,000 citizens shall be destroyed industrially or shall their industrial status be brought into rigid alignment with basic industrial justice?

COPPER PRODUCTION INCREASE OF CHILE AND BELGIAN CONGO

Due to the fact that certain champions of free-trade copper seem to minimize the menacing copper competition of Chile and Katanga, I have deemed it essential to discuss this in more explicit detail to-day than I did on April 9, 1926. Even a casual inspection of the data I have submitted denotes the deadly nature of this competition. The more these foreign copper production factors are analyzed the more rigid seems our conclusion that protection is all essential.

For years prior to 1912 the copper production of Chile only averaged about 9 per cent of our domestic production. Beginning with 1912, definite statements were first issued indicating that the vast Chilean poundages were commercially valuable.

For 1912 we note that the Chilean copper production was 91,815,000 pounds, or 7.4 per cent of our domestic production of 1,243,268,720 pounds for that year. For 1923, the latest definite obtainable, we find that the Chilean copper production was 401,000,000 pounds, or 27.9 per cent of our domestic production of 1,435,000,000 pounds for that year.

This denotes a production ratio percentage increase of 377 per cent when comparing the foregoing ratio productions of Chile with that of our country.

The foregoing outlines a most menacing copper-production increase in the past decade, but when consideration is given to the fact that the Chile Copper Co. is increasing her productive facilities, likewise the production of 200,000,000 pounds annually from the Andes Copper Co. areas, we begin to realize the overwhelming menace of this competition.

It is also essential that we compare the production rate increase of Belgian Congo, Africa, since 1912, for it is this country which embraces the enormously rich Katanga copper reserves. For years prior to 1912 the annual copper production of Belgian Congo never exceeded 5,500,000 pounds, a negligible quantity when compared with our domestic production.

For 1912 we note that the Belgian Congo production was 5,500,000 pounds, or 0.45 per cent of our domestic production, 1,243,268,720 pounds, for that year.

For 1924, the latest definite obtainable, we find that the Belgian Congo production was 188,250,000 pounds, or 11.5 per cent of our domestic production, 1,634,249,192 pounds, for that year.

This denotes a production ratio percentage increase of 2,550 per cent when comparing the foregoing ratio productions of Belgian Congo with that of our country.

The foregoing certainly denotes a most startling increase since 1912, but a greater menace lies in the fact that Katanga is rapidly expanding her productive facilities and within a very short time will be able to lay down her copper at any port in the world at not alone one-half our domestic cost but in volume approximating at least one-half our total production.

Our domestic copper miner knows the foregoing destructive factors, and these form the basis of the anxiety that besets him now; likewise he realizes the economic ruin that surely confronts him if this deadly menace of oppressed-labor copper can not be prevented from entering our domestic market except on a parity cost basis with his product.

I submit that no basic metal industry during all our industrial history has ever been denied protection when confronted by economic factors so menacing as those now besetting our domestic copper-mining industry.

Realizing that even justice has been dispensed uniformly heretofore by Congress, I feel sanguine that the same degree of equity will be accorded us.

COPPER INGOT TERMED A RAW RESOURCE

If we continue to classify the electrolytic copper ingot as a so-called raw resource and on this premise deny it protection, then consistently you should forthwith place on the free list the steel ingot, the lead billet, the zinc slab, and the aluminum ingot.

The mining, smelting, and refining processes for copper are as involved, intricate, and highly technical from ore to ingot stage as for any of the foregoing highly protected metals.

It requires the most skillful of employees from mined ore to finished copper ingot. None of the employees within our present protected industries, whether within the agricultural, mining, or manufacturing subdivisions, can excel the capable efficiency displayed by the copper employee.

The hearings on general tariff revision, Senate Document 108, abound with the similarity appeal essence "accord me protection, but leave my raw resources on the free list." Nearly every domestic producer is a protectionist—yet to him he seems always encircled by raw resources that should be on the free list.

We find the representative of a \$1,500,000,000 steel group pleading for a livable steel schedule, yet terming it perfectly ridiculous to protect his raw resources, such as ferrosilicon, manganese, fluorspar, magnesite, lead, and zinc. In turn, we will also find the representative of American importers of fine steels bemoaning the protection demanded by our domestic steel producer.

We will find the representatives of the brass and copper fabricating industries meticulously presenting the most minute protective demands for their industry, and the only consideration the copper ingot secured was the admission that it was on the free list, page 2048. They were too desirous, naturally, to have their raw resource, namely, copper, remain on the free list, and this influence was not alone powerful then, but is seemingly very powerful to-day.

We also note that the fabricating industry representative in 1921 referred to the electrolytic copper ingot as "the raw ingot"; that they were threatened with ruinous foreign competition—

in spite of the fact of the copper production of the United States, the American manufacturer and his European competitor are practically on a par in the cost of their material—

Likewise—

the export business is practically an unknown quantity—

That—

for all time foreign manufacturers have enjoyed labor costs so greatly below those prevailing in the United States that this alone gave them an insurmountable advantage—

And in closing their plea for an adequate tariff we find—

they ask only for such protection that will enable them to continue to pay liberal wages to their employees, secure a fair return on the capital invested, and retain the American market for American institutions.

The foregoing pleading supplication for protection suggests this to be a most opportune moment to analyze the posttariff exporting activity of this fabricating agency that so elequently stated its inability to meet foreign competition—its inability to export its product. This pleader for “the American market for American institutions”; this altruistic manufacturing agency that constituted itself a zealous classifier of our domestic manufactured electrolytic copper ingot as “the raw ingot”; derisively branding it thus with no other intent and purpose than to keep it chained and anchored within the “raw resource” free list; greedily desirous of securing their “raw resources” from the cheap-labor copper areas of the world.

Who can challenge the premise that if a protected copper fabricator can export copper why can not a protected copper producer likewise do so, particularly if the following facts disclose that the fabricator actually exports twice as much copper as the producer?

We find for the years 1922, 1923, and 1924 that of the total domestic copper available for export, amounting to 467,685,373 pounds, we note that 296,979,285 pounds of copper was exported during this three-year period in the fabricated form of rods, insulated wire and cable, wire (except insulated), plates and sheets, pipes and tubes, etc. This fabricated export aggregate is equivalent to 63.5 per cent of all our domestic copper available for export during this three-year period.

The foregoing denotes that of the domestic copper available for export the “protected” fabricator who plead ruinous competition without a tariff exported more copper than the “free-trade” copper producer who had no one to plead in his behalf.

The fabricator received his protection, the copper miner with his “raw ingot” was left without, made to face the “insurmountable labor costs” of foreign lands.

You will also find the foil manufacturers of America protesting against the 50 per cent ad valorem protection accorded lead, their raw resource, under the Fordney bill, yet demanding increased protection for their manufactured product.

Endless parallelisms could be submitted confirming the relativity that resources bear in its relationship to the manufacturer. What is a raw resource for one is the finished product of a different manufacturer. Everything is relative, from a cost standpoint, within our industrial realm, and I maintain this relationship should not be denied the copper industry. Copper should not be discriminated against and left on the free list under the shallow, specious pretext that it is a raw resource, yet charging it protective tariff prices for everything that goes to make up its cost.

Our domestic copper-mining industry has just as definite a wage, supply, transportation, capital, and tax cost sequence to care for as any other industry within our country. Within the metal industry its outlay is only exceeded by the colossally valuable steel industry; it has no other near competitor. In fact, the value of its output is greater than the combined value of its three nearest competitors, namely, the lead, zinc, and aluminum industries.

In view of the fact that the lesser production value metals, namely, lead, zinc, and aluminum, have been accorded protection, no justifiable economic reason can be advanced for denying protection to the vastly more valuable copper-mining industry.

COPPER IS ENTITLED TO PROTECTION

In comparing the relationship of protected lead with unprotected copper, it may be of interest to note that the value of domestic copper mined annually is only exceeded by the value of one other domestic produced metal, namely, pig iron. The great disparity in average pound price between copper and pig iron, about 16 to 1, denotes very little comparative information can be obtained by discussing their economic relationship.

The other metals that approach copper in per pound value and gross annual production value are lead, zinc, and aluminum. It is of interest to compare the ratio value that these metals bear to copper likewise discuss their economic relationship.

Referring to consolidated data secured from the 1924 United States Statistical Abstract, we find that the gross value of domestic-produced copper for the 5-year period, 1920-1924, exceeds by \$60,000,000 the combined gross value of domestic lead, zinc, and aluminum metals produced during that period.

In consequence, from a basic value "key industry," or from any other economic standpoint, copper is certainly entitled to protection on the foregoing presentation of facts, its value being greater than the combined value of these other metals, all of which are protected.

The value of domestic-produced lead is the only one of these three comparative metals that approaches anywhere near the value of domestic-mined copper. For example, the combined value of lead produced for the 5-year period, 1920-1924, equals \$380,755,000. The value of copper produced for this period equals \$841,000,000, the value of copper therefore being 220 per cent greater than the value of lead produced for this 5-year period.

Referring to page 306, Statistical Abstract of the United States for 1924, we find the following:

Commodity	Index numbers, 1913=100		
	1922	1923	1924
Copper.....	85	92	83
Lead.....	132	168	188

Before proceeding with my discussion, I wish to state that scanning the index numbers of every domestic produced metal from iron to zinc of the 16 listed within division 5, page 306, copper is the only one below the 1913 level; likewise it is the only one that has persistently remained there throughout.

A casual inspection of the foregoing index factors denote the deplorable value condition of copper; likewise the accelerated value condition of lead.

Copper was left unprotected in framing the tariff act of 1922, while lead was accorded protection.

The average domestic price of lead for 30 years prior to 1922 was about 4.5 cents per pound. A duty of 2.125 cents was allowed, which equals 47.2 per cent ad valorem.

The average price of copper for the past 30 years, from 1896-1925, equals 16.7 cents per pound.

The average price of copper for the past five years, 1921-1925, equals 13.6 cents per pound.

The average price of copper for the past six months is 13.7 cents per pound.

The average price of copper to-day is 13.7 cents per pound.

In analyzing the foregoing factors, we find that copper is not alone at present selling 18 per cent below its past average 30-year price, but that it has persistently maintained this low level for the past five years—an unparalleled economic tragedy.

No commodity index of the hundreds listed from "farm products" to "building materials" within the 1924 Statistical Abstract compares with the economic misery accorded copper, the nearest being hides, another skinned product from the rural reaches.

In Senate bill No. 2018, introduced by me on January 4, 1926, a duty of 6 cents per pound is asked as against foreign produced copper.

The average price of copper for the past 30 years equals 16.7 cents per pound, hence a 6-cent duty equals 35.3 per cent ad valorem. This is 25.2 per cent less proportionately than the duty accorded lead under the 1922 tariff act.

The data submitted in my remarks, April 9, 1926, denotes that the foreign copper producer will deliver his copper in New York at a cost of 6 cents per pound as against an average domestic cost of 12 cents per pound. Furthermore, the analysis submitted herein shows the deplorable condition of our domestic copper-mining industry. Furthermore, all other metals are protected.

These foreign-menace production factors alone denote the absolute necessity for protecting our domestic copper mining industry, but in addition every tenet of justice and equity denotes that copper should be accorded protection in order to place it on an economic parity with the present protected commodities.

If protection is not accorded the domestic copper-mining industry, Arizona of all the copper-producing States will suffer the most. We in Arizona are absolutely dependent upon the mining of copper; three-fourths at least of our population are dependent thereon. We produce nearly one-half of all the copper mined within our country. Everyone within my State—the miner, farmer, cattleman, sheepman, business man, professional man, railroad employee, and practically all others residing within Arizona are vitally interested in protecting our copper industry. In addition the copper-consuming citizens of our country will likewise be accorded protection if you permit us to supply our domestic market. Foreign producers in control of the rubber, potash, coffee, and other essential national necessities have exploited us callously; foreign producers may be expected to repeat their practices of the past and present if you permit the destruction of our domestic copper-mining industry.

DUAL CONTROLLERS AND THE COPPER TARIFF

It has been emphasized that the other important domestic copper-producing States aside from Arizona and Michigan are seemingly not very eager in demanding protection for our domestic copper-mining industry. Surely if protection was so all-essential the controllers of the copper-mining industry within these certain States would be vociferously insistent in their demand for protection.

In replying to the foregoing I maintain that in most of those States the local copper miner does not as yet realize the menace of foreign copper competition, due to the local mines and smelters being so largely controlled by one or the other of these two domestic corporations, who together likewise control 100 per cent of the Chilean production and the vast Chilean copper reserves.

Attention will be directed to the fact that one of these two domestic corporations (herein termed "dual controllers") entered Chile about 15 years ago; the other purchased control of the Chile Copper Co. (which owns 65 per cent of the total Chilean copper reserve) less than five years ago. Hence this dual-control menace is of very recent origin, and its real menace was initiated when our largest domestic copper-producing corporation purchased control of Chile Copper Co. Their plea for acquiring this control will undoubtedly be that their economic plight, due to the high copper-production cost of their domestic controlled copper areas, conservatively estimated to be much in excess of 12 cents per pound before crediting any of their fabricating, timber, power, plus foreign mine profits (Cananea), demanded their securing control of this cheap labor, low transportation cost, enormous poundage, high porphyry grade ore reserve of Chile. Neither their economic plight nor an insatiable international profit ambition is proper justification for the destruction of so important a basic industry as our domestic copper-mining industry. No one will deny the efficiency of this organization within the economic realm; many will question, however, its right to destroy the domestic industry that gave it industrial birth.

The analysis which I shall submit is based on production statistics obtained from the general reports on copper for the years 1920 to 1923, inclusive, said reports being issued by the Department of the Interior, and for 1924 by the Department of Commerce.

In order to avoid the criticism directed against using data pertaining to an individual year, I have taken the very latest authentic available statistics and consolidated them for the five-year period, namely, 1920-1924. No later authentic and unbiased data is obtainable pertaining to our domestic copper-mining industry than that outlined in "Copper for 1924," by the Bureau of Mines, Department of Commerce, issued June 2, 1926.

I have summarized the various production factors and computed their percentage relationships; hence, in order to simplify the discussion and to avoid introducing voluminous compilations, I shall merely quote percentage ratios.

Of the total domestic copper produced for the five-year period 1920 to 1924, inclusive, we find 95.5 per cent thereof came from Arizona, Montana, Utah, Michigan, Alaska, New Mexico, and Nevada; also that 4.5 per cent thereof came from California, Tennessee,

Colorado, Idaho, Oregon, Washington, Pennsylvania, Missouri, and undistributed.

The percentage ratio for each of the six States and Alaska aggregating the 95.5 per cent is as follows: Arizona, 42.3 per cent; Montana, 15.2 per cent; Utah, 12.3 per cent; Michigan, 11.6 per cent; Alaska, 6.1 per cent; New Mexico, 4.1 per cent; and Nevada, 4 per cent.

The foregoing denotes that the copper production of Arizona exceeded the combined production of Montana, Utah, and Michigan during the five-year period.

The dual controllers control copper mines within Arizona, Montana, Utah, Alaska, New Mexico, and Nevada.

The dual controllers mined 46.8 per cent of the total domestic copper produced during the five-year period 1920-1924. It was also found that for 1924 they mined 50.5 per cent of the total domestic production. They also mined 55.6 per cent of the copper produced within the foregoing five States and Alaska during the five-year period 1920-1924; this means that not to exceed 44.4 per cent was mined by the purely independent domestic copper producer.

Eliminating Territorial Alaska, which produced only 6.1 per cent of the total domestic production during the period 1920-1924, we shall confine our dual-control discussion to the five leading copper-producing States, namely, Arizona, Montana, Utah, New Mexico, and Nevada; said States having produced 77.8 per cent of the total domestic copper mined during the five-year period 1920-1924.

During this five-year period 1920-1924, we find that the dual controllers mined 52.7 per cent and the independent copper producer only 47.3 per cent of the combined production of Arizona, Montana, Utah, New Mexico, and Nevada. It was also ascertained that during the five-year period 1920-1924, the dual controllers mined the following percentage ratios, namely, for Arizona, 23 per cent; Montana, 87 per cent; Utah, 88 per cent; New Mexico, 87 per cent; and 92 per cent of Nevada's total copper production. For the same period we find that the purely domestic independent—as distinguished from the dual controllers—producer mined the following percentage ratios; namely, for Arizona, 77 per cent; Montana, 13 per cent; Utah, 12 per cent; New Mexico, 13 per cent; and 8 per cent of Nevada's total copper production.

The foregoing authoritative data does unmistakably explain why the forces in control of the domestic copper-mining industry within the four important copper-producing States of Montana, Utah, New Mexico, and Nevada are not pleading for a copper tariff. Within these four States the dual controllers mined 88 per cent of all the copper produced during the five-year period 1920-1924. This is conclusive evidence as to the overwhelming control they exercise in these four States and hence no one need ask hereafter that if a copper tariff was so essential why these leading copper-producing States are not in the very forefront demanding same.

The cry within these dual controller States will not come from the manipulative internationalists who so effectively control the producers—the cry will arise from the copper miner who seeks a liveable wage, the claim owner who desires development funds, the business

man, home owner, in fact, all those who are solely dependent upon the maximum development of and who at heart are truly devoted to their State.

Referring again to Arizona's production, we note that 77 per cent of her total production for the five-year period 1920-1924, was mined by the independent producer and only 23 per cent by the dual controllers. This will denote why the cry for a copper tariff arises from Arizona, joined in by the independent copper-producing State of Michigan and will also undoubtedly be joined in by the other independent copper-producing States of our country when aroused to the menace confronting their industry, for the independent producers of Arizona alone have mined 61 per cent of the total independent copper produced during the five-year period 1920-1924, and this overwhelming control of the independent production denotes why she leads in the demand for a tariff—why she must carry on until her all-vital industry is protected. Proportionately the copper-mining industry is more vital to Arizona's economic welfare than the steel industry is to Pennsylvania, or the important relationship that the corn industry bears to Iowa's economic welfare.

No other State in the Union is so solely dependent on a single product—nearly every man, woman, and child within Arizona's boundaries are vitally dependent upon the mining of copper. Protection is the economic savior from our present woe and the horrors to come. When achieved, Arizona will not alone acclaim this doctrine but will forever aid in maintaining same.

MANIPULATIVE CONTROL

What other basic domestic industry within our whole industrial realm, possessing the magnitude of our domestic copper-mining industry, is controlled by an agency whose combined reserve values are in the ratio of 30 per cent domestically and 70 per cent foreign?

I challenge anyone to point out a parallel value phase within not alone the other metal industries of our country but likewise within the agricultural or manufacturing subdivisions as well. The domestic steel, lead, zinc, and aluminum metal industries have not this manipulative foreign producer control—the domestic producing or manufacturing wool and cotton industries are not subversive of foreign-control factors. The domestic packers tried this dual control by spending millions in Argentina, hoping thereby to secure vaster profits through domestic distribution of these cheap-labor meat products, but they were checkmated by the tariff.

Who is there within our country openly championing this unjustifiable discrimination against our domestic copper mining industry? What plea in equity can they advance to maintain this discrimination in face of the factors submitted by me?

Some say that by effecting more rigid economies along mining, metallurgical, and executive channels we may be able to survive. Do they answer this by pointing out that as we develop these more detailed efficient economies the keen-eyed American in control of these foreign copper areas will instantly adopt these as well? They talk of demanding lower taxes, lower transportation rates, and lower supply costs when these are not alone 100 per cent higher than 1913 but the tendency is ever higher. They do not dwell on the low wages

paid the domestic copper miner—he who is engaged in one of the deadly hazardous occupations of our country. They do not dwell on the fact that he now secures only 40 per cent more in wages than he did in 1913, this in the face of the 128 per cent increase for all reporting domestic labor for 1924, as shown on page 317, United States Statistical Abstract; also compare the copper miner's paltry wage increase since 1913 with the all-commodity retail index, page 307, which is 71 per cent higher for 1924 than 1913.

I submit there is no answer in equity to this glaring discrimination, and having submitted these discriminatory factors in detail to Congress to-day and on April 9, 1926, I am sure that justice will be accorded our domestic copper miner—that this discrimination will be promptly eliminated by imposing the cost differential duty of 6 cents per pound as against foreign copper produced by the cheap and oppressed labor of foreign lands. In so doing you will check the manipulative control machinations of these calloused domestic internationalists whose plans demand profits regardless of the destruction wrought our domestic copper miner.

FOREIGN COMPETITION AS AGAINST PROTECTED COPPER

Due to copper being on the free list, it is impossible to point to specific examples as to what may be expected in the way of foreign competitions when and if copper is accorded protection.

It is of interest, however, to analyze the factors of foreign competition as against protected lead, the only metal that approaches the per pound price and gross annual production value of copper.

Within Senate Document 308 we find the criticism advanced that the 50 per cent ad valorem accorded lead under the Fordney-McCumber Act was prohibitive, hence would tend to embargo the importation of foreign-produced lead.

Referring to page 691, United States Statistical Abstract, 1924, we find that the maximum importations of lead come from Mexico. This is true both as to lead contained within ores and base bullion.

The importation of lead in ores from Mexico for 1922 was 14,400,000 pounds; for 1924 it amounted to 66,656,000 pounds, denoting an annual increase of 360 per cent in the short space of three years after the passage of the Fordney-McCumber tariff.

Base lead bullion importations for 1924 compared with 1922 denote a 190 per cent increase.

The foregoing increase in lead importations denotes that foreign competition is immediately effective whenever the domestic price of lead exceeds the past 30-year average price of 4.5 cents prior to 1922. The ad valorem duty of 47.2 per cent accorded the lead miner only measured the difference in cost between domestic and foreign produced lead. Whenever the domestic price of lead exceeds its average base price, we note the immediate competition of foreign-produced lead.

I submit that even with a 6-cent duty, which only accords a 35.3 per cent ad valorem protection, that foreign competition will be immediately felt whenever the domestic price of copper exceeds its base price. The facts quoted in the foregoing prove this for lead, and it will undoubtedly operate parallelly as to copper.

It must be remembered that a 6-cent duty merely represents the difference in cost between domestic and foreign produced copper.

Competition will certainly not be eliminated domestically when the foreign producer can enter our domestic market on a parity cost with our domestic-copper producer.

The present free-trade copper policy overwhelmingly discriminates against the domestic producer, and its continuance can only be justified on the theory that it is more beneficial to our country that protection be accorded the foreign rather than our domestic-copper producer.

DUAL CONTROLLERS AND THEIR FOREIGN PROFITS

It will be remembered that the mining profit that these dual controllers will obtain from their cheap-labor Chilean copper reserves is 6 cents per pound with copper selling at 12 cents. This denotes a mine profit of \$2,700,000,000 on the 45,000,000 pounds contained within their present-known copper reserves.

This is a colossal sum, well worthy of the most painstaking effort on the part of even the most ambitious of international commercialists.

These dual controllers also dominate the brass and copper fabricating industries of our country and are most zealous in seeing that protection is accorded their fabricated products; likewise zealous that copper remain on the free list, thereby permitting unlimited importations of copper free of duty from their low-cost Chilean areas. Whatever mine investments they have in this country can easily be amortized out of their fabricating activities and the vaster mine profits available through utilization of the cheap labor of the Andes.

It should be further remembered, provided the plans of these dual controllers are not negated by a copper tariff, and when they have ruined our domestic copper-mining industry, they will reap much vaster differential profits from their mining and fabricating activities, due to monopolistic control.

It is undeniable that the best interests of the consumers of our country can be best served by maintaining a domestic production of copper, thereby not alone checking this foreign monopoly control, but likewise sustaining a basic domestic industry; domestic competition will provide the consumers with reasonable-priced copper. This foreign monopoly may do so until our independent domestic production is destroyed. Then they will undoubtedly do as other foreign monopolists have done, namely, raise prices to extortionate heights.

We have 220 copper-mining districts, designated as such by the United States Geological Survey, within the United States. Very few of these have been thoroughly explored. Vast copper poundages will undoubtedly be found therein upon completion of exploration work.

Due to the high labor, supply, transportation, and tax costs within our country, capital can not be secured to explore these domestic copper areas as long as copper is kept on the free list. Without continuous areal development the domestic industry will decline, due to depleting the present known reserves.

The industrial supremacy of our country is not alone now dependent upon protection, but this doctrine is solely responsible for

its industrial magnitude. Extending its beneficence to the domestic copper-mining industry will not alone retain the colossal sums these dual controllers seek in exchange for their cheap-labor copper, but likewise maintain uninterruptedly one of the very important and most essential of our basic industries.

WAGE LOSSES SUFFERED BY ARIZONA LABOR

The champions of free-trade copper do not dwell overly much on the wages lost to our domestic-copper miners due to the past five-year 18 per cent below the average price received for our domestic-produced copper. The wages of the copper miner are regulated by the price of copper; hence, when low their wages are low; any marked increase in the price of copper is immediately reflected through an increase of wages.

This persistent low price of copper, which is distinctly attributable to its being unprotected, can best be understood by the copper miner if definite loss factors are submitted.

The consolidated domestic copper production for the five-year period 1920-1924 was 5,734,182,000 pounds (U. S. Statistical Abstract, 1924).

The average price for copper the past 30 years, 1896-1925, equals 16.7 cents per pound.

The average price for copper the past five years, 1921-1925, equals 13.6 cents per pound.

Referring to page 306, United States Statistical Abstract, 1924, we note that steel billets and lead during the five-year period 1920-1924 never dropped below—in fact, these will average about 50 per cent higher than the 1913 level. There is no question but that if protection had been accorded copper in 1921, its average price since would be much in excess of its average 30-year price.

However, assuming the minimum loss of only 3 cents per pound, the difference between the 30-year and the 5-year period average prices, as given foregoing, we have a minimum total loss of \$172,025,460 suffered by the domestic copper producer from 1920-1924.

Arizona produced 42.3 per cent of the foregoing copper, hence her loss for these five years equals at least \$73,000,000. About half of the foregoing, or \$36,500,000, was lost to Arizona labor alone. If copper had sold at only an average of 25 per cent above its 30-year price, or 21 cents per pound, it denotes a loss to Arizona labor aggregating about \$85,000,000.

The foregoing denotes that Arizona labor has lost a minimum of about \$600,000 per month the past five years due to copper selling below its average 30-year price.

If copper had sold at its very reasonable price, only 25 per cent above its average 30-year price, the loss to Arizona labor will amount to approximately \$1,400,000 per month for the 5-year period.

The foregoing memoranda conveys an approximate idea as to the monetary loss suffered by Arizona copper labor alone during the past five years.

In order to forestall the statement that the domestic consumer secured the benefit of this labor loss, attention will be directed to the fact that the copper products used by the consumer are much higher to-day than their past 30-year average price. This labor loss differential was absorbed by the manufacturer, jobber, and retailer;

the domestic consumer during the past five years has never received any benefit from this below average priced copper whether it went directly into products used by him, neither has it enabled him to secure lessened electric current or telephone service rates.

It would indeed be most interesting to have these champions of free-trade copper explain why the wage earnings rightfully belonging to Arizona labor aggregating hundreds of thousands of dollars per month, should be allowed to be diverted from him and into the already overflowing purse of these dual controllers.

CONCLUSION

I maintain that the facts submitted April 9, 1926, likewise to-day on this floor, confirm not alone the necessity of protecting our domestic copper-mining industry but that protection should be accorded forthwith.

You have uniformly cared for the myriad of industries that have sought protection and aid heretofore, and I am sanguine Congress will extend that beneficence to our industry.

Protection has been accorded our Arizona cattlemen and sheep growers, thereby saving them from the destructive competition of the cheaper meats and wool of foreign lands.

You saved the citrus and produce industry within the rich irrigated valleys of Arizona from the cheap cost products grown within the wonderfully fertile valleys of west coast Mexico and other foreign areas.

Funds have been loaned us to build the great Coolidge Dam; its impounded waters will bring into productive being one of the richest valleys in the world.

All this and more have you done in our behalf. We again acknowledge the aid you have accorded us and reiterate our appreciation.

Yet with all this, more than three-fourths of our people are beset with present woe and anxiety; likewise they are fearful of the future. Our copper miner sees most clearly the menacing competition of the Andes and the African jungles. The cheap copper from these oppressed labor areas is rapidly destroying not alone his livelihood but his home equities as well.

Surely a citizen that furnishes the valuable metal that transmits human thought and industrial energy is entitled to economic justice.

Likewise the domestic production of this metal is protectively essential, not alone during time of peace but vitally so if war should ever isolate us.

He is dying now industrially, and all that you can do for him—unless protection is accorded soon—will be to shatter the mine portals, thereby effectively and for all time seal within the industrial remains of our domestic copper miner.

Mr. President, I submit herewith in a condensed form certain transportation, labor, and other cost data. It has been difficult to secure details pertaining to subdivisional copper costs of the Chilean and Katanga areas. Extended inquiries have been made and much valuable data has been secured. Additional data will be forthcoming quite soon giving more corroborative minute cost details. However, the most important reliable data now possessed regarding transportation, labor, mining, leaching, and total copper costs pertaining to

these foreign areas is herewith submitted. I feel sanguine that this data, in the minds of all unbiased persons, will fully corroborate the statements regarding foreign copper costs made by me on the floor of the Senate April 9, 1926, likewise to-day.

I ask unanimous consent that these tables may be printed in the Record.

The PRESIDING OFFICER. Without objection, the tables will be printed in the Record.

(The tables are as follows:)

Cost data—Water-haul cost (foreign bottoms) per ton of copper to New York from various Chilean-African and other foreign ports

[Data secured from transportation division, Department of Commerce, Washington, D. C., June, 1926]

Name of port		Distance in miles		Cost		
From—	To—	Water	Land	2,240 pounds	2,000 pounds	2,000 pounds land-mile
Antofagasta, Chile.....	New York.....	¹ 4, 158	¹ 4, 788	\$5. 75	\$5. 12	\$0. 00106
Do.....	San Francisco.....	4, 762	5, 484	5. 75	5. 12	. 00095
Do.....	Seattle.....	5, 549	6, 386	5. 75	5. 12	. 00080
Do.....	Galveston.....	¹ 3, 659	¹ 4, 213	5. 75	5. 12	. 00121
Do.....	Liverpool ²	¹ 6, 813	¹ 7, 845	6. 25	5. 58	. 00071
Do.....	Hamburg ²	¹ 7, 233	¹ 8, 329	6. 25	5. 58	. 00067
Do.....	Havre ²	¹ 6, 778	¹ 7, 805	6. 25	5. 58	. 00071
Do.....	Genoa ²	¹ 7, 368	¹ 8, 484	6. 25	5. 58	. 00065
Do.....	Yokohama ²	9, 083	10, 469	5. 60	5. 00	. 00048
Do.....	Shanghai ²	10, 019	11, 537	6. 16	5. 50	. 00047
Valparaiso, Chile.....	New York.....	¹ 4, 633	¹ 5, 335	5. 75	5. 12	. 00095
Do.....	San Francisco.....	5, 140	5, 919	5. 75	5. 12	. 00086
Do.....	Galveston.....	¹ 4, 152	¹ 4, 781	5. 75	5. 12	. 00107
Do.....	Liverpool ²	¹ 7, 207	¹ 8, 299	6. 25	5. 58	. 00067
Do.....	Havre ²	¹ 7, 258	¹ 8, 358	6. 25	5. 58	. 00067
Do.....	Genoa ²	¹ 7, 840	¹ 9, 033	6. 25	5. 58	. 00062
Do.....	Yokohama ²	9, 313	10, 724	5. 60	5. 00	. 00046
Callao, Peru.....	New York.....	¹ 3, 363	¹ 3, 873	5. 75	5. 12	. 00132
Do.....	San Francisco.....	3, 987	4, 591	5. 75	5. 12	. 00111
Do.....	Seattle.....	4, 774	5, 498	5. 75	5. 12	. 00093
Do.....	Galveston.....	¹ 2, 882	¹ 3, 319	5. 75	5. 12	. 00154
Do.....	Liverpool ²	¹ 5, 937	¹ 6, 837	6. 25	5. 58	. 00081
Do.....	Hamburg ²	¹ 6, 459	¹ 7, 438	6. 25	5. 58	. 00075
Do.....	Yokohama ²	8, 555	9, 851	5. 60	5. 00	. 00050
Do.....	Shanghai ²	9, 491	10, 929	6. 16	5. 50	. 00050
Benguela, Africa.....	New York ²	5, 773	6, 420	6. 77	6. 00	. 00094
Dar-es-Salaam, Africa.....	New York.....	8, 331	9, 597	7. 27	6. 48	. 00067
Do.....	Liverpool ²	² 6, 325	² 7, 283	7. 27	6. 48	. 00088
Do.....	Hamburg ²	² 6, 690	² 7, 707	7. 27	6. 48	. 00084
Beira, Africa.....	New York.....	8, 290	9, 550	7. 27	6. 48	. 00067
Do.....	Liverpool ²	² 7, 235	² 8, 354	7. 27	6. 48	. 00077
Do.....	Hamburg.....	² 7, 600	² 8, 755	7. 27	6. 48	. 00074
Cape Town, Africa.....	New York.....	6, 786	7, 814	7. 27	6. 48	. 00082
Do.....	Liverpool ²	6, 080	7, 001	7. 27	6. 48	. 00092
Do.....	Hamburg.....	6, 485	7, 470	7. 27	6. 48	. 00086
Calcutta (pig iron).....	New York.....	² 9, 816	² 11, 304	6. 06	5. 40	. 00047
Do.....	Liverpool ²	² 7, 935	² 9, 141	5. 33	4. 76	. 00052
Do.....	Hamburg.....	² 8, 300	² 9, 562	5. 33	4. 76	. 00049
Melbourne, Australia.....	New York.....	¹ 9, 945	¹ 11, 452	7. 88	7. 02	. 00061
Do.....	Liverpool ²	² 11, 084	² 12, 764	8. 48	7. 56	. 00059
Do.....	Hamburg ²	² 11, 350	² 13, 075	8. 48	7. 56	. 00057
New York, United States of America.....	Liverpool.....	3, 107	3, 578	5. 50	4. 90	. 00136
Do.....	Hamburg.....	3, 648	4, 201	4. 50	4. 02	. 00095
Do.....	Havre.....	3, 192	3, 676	5. 50	4. 90	. 00133
Do.....	Genoa.....	4, 060	4, 675	5. 75	5. 12	. 00109
Do.....	Buenos Aires.....	5, 871	6, 761	13. 50	12. 05	. 00178
Do.....	Yokohama.....	¹ 9, 699	¹ 11, 169	12. 32	11. 00	. 00098
Do.....	Shanghai.....	¹ 10, 573	¹ 12, 176	12. 88	11. 50	. 00094

¹ Via Suez Canal.

² Rates between these ports have been estimated.

³ Via Panama Canal.

NOTE.—All rates same for refined and unrefined copper; except from New York, rates apply on refined copper.

Freight cost to New York from principal domestic copper-producing areas—per ton (2,000 pounds)

[Copper data secured from transportation division, Department of Commerce, June, 1924]

Freight cost to New York from—	All rail route		Rail and water route		
	Miles	Cost	Statute miles		Cost
			Rail	Water	
Butte, Mont.	2,510	\$12.50			
Butte, Mont. (via Seattle and Panama)			668	6,953	\$15.09
Garfield, Utah	2,450	12.50			
Garfield, Utah (via San Francisco and Panama)			865	6,059	13.85
Ely, Nev.	2,717	13.50			
Ajo, Ariz.	2,783	14.50			
Ajo, Ariz. (via Galveston)			1,371	2,180	12.50
Douglas, Ariz.	2,478	14.50			
Douglas, Ariz. (via Galveston)			1,103	2,180	12.50
Hayden, Ariz.	2,810	14.50			
Hayden, Ariz. (via Galveston)			1,401	2,180	12.50
Jerome, Ariz.	2,684	14.50			
Jerome, Ariz. (via Los Angeles and Panama)			547	5,677	
Miami, Ariz.	2,640	14.50			
Miami, Ariz. (via Galveston)			1,077		12.50
Calumet, Mich.	1,357	11.80			
Calumet, Mich. (via Lake route)			413	935	10.60
Ducktown, Tenn.	1,152	10.80			

AN ANALYSIS OF FOREGOING TRANSPORTATION COST RATES

Mr. CAMERON. Mr. President, the foregoing water and rail transportation rates denote that freight costs from the loci of the Chilean copper poundage on copper to our domestic, European, and Orient ports are much less than the freight costs from the loci of our domestic copper poundage to these same ports.

The foregoing rates also denote that Katanga copper, upon completion of the Elizabethville to Benguela Railroad, can be delivered at New York, European, and Orient ports at less transportation cost than our domestic copper.

ANALYTICAL PROOF OF FOREGOING STATEMENTS

A. DOMESTIC COPPER FREIGHT COSTS

The rail cost from loci of domestic copper poundage to New York, 2,580 miles, equals \$13.75 per ton (rate, 53 cents ton-mile). However, the Galveston rate of \$12.50 per ton is the minimum for 90 per cent of our domestic copper production; hence, same will be taken. Therefore, freight cost to Liverpool or Havre, equals \$17.40; to Hamburg, equals \$16.52; to Genoa, equals \$17.62; to Buenos Aires, equals \$24.55; to Yokohama via New York, equals \$23.50; to Shanghai via New York, equals \$24 per short ton.

Our domestic copper refineries are nearly all situated on the Atlantic tidewater. In consequence, nearly all our domestic blister copper must be shipped east to be refined. Less than 20 per cent of our production is refined at Great Falls and Tacoma; about 10 per cent comes into the market as lake copper. Therefore, at least 70 per cent of all our annual copper production, as electrolytic copper, originates at or near New York; hence meets directly and initially

the competition of the low wage, low transportation, low supply cost copper from the higher-grade ore areas of Chile. This will also hold true with reference to the Katanga area upon completion of the Benguela Railroad.

B. CHILEAN COPPER FREIGHT COSTS

The loci of Chilean copper poundage lies 173 miles rail haul from coast. Due to this short haul, assume rate 1 cent ton-mile; hence rail cost equals \$1.73. The loci water haul distance equals 4,040 miles to New York; therefore, it is fair to assume the greater haul Valparaiso costs.

Therefore, the freight cost of Chilean copper delivered to New York, San Francisco, Seattle, or Galveston equals \$6.85; to Liverpool, Hamburg, Havre, or Genoa equals \$7.31; to Yokohama equals \$6.73; to Shanghai equals \$7.23 per short ton.

The foregoing freight costs denote the important strategic economic position of the Chilean copper poundage.

Chilean electrolytic copper can be delivered to any port in the world at much less transportation cost than our domestic copper.

This strategic economic position due to minimum transportation costs plus very cheap labor will also undoubtedly be utilized to fabricate copper products for our domestic market just as soon as the dual controllers have effectuated their plans of securing complete control thereof. This phase is not alone of vital interest to our domestic copper miner, but should likewise be of great interest to our independent copper and brass fabricator.

The elimination of domestic copper competition, through destruction of the domestic independent copper producer, means that the public, likewise the independent fabricator, can only secure copper from the dual controllers. These dual controllers are likewise fabricators and the belief is that they will retain their copper poundage solely and alone for their fabricating activities.

When this comes to pass it is quite certain that Chile, in the light of her nitrate monopoly export tax perquisites, will proceed forthwith to levy a copper export tax to harmonize with all the other monopolistic perquisites.

Our domestic consumers will pay most of this extortion for we consume one-half of the world's copper production. Our dual controllers will see to it that the Katanga competition does not disturb their monopoly. Katanga will probably be given the markets exterior to the United States.

C. KATANGA COPPER FREIGHT COSTS

Katanga copper is now being exported from Beira, Dar-es-Salaam, and Capetown. The freight costs to these ports are excessive, due to inefficient transportation facilities prevailing between them and Elizabethville. It is estimated that the short-haul line railroad from Elizabethville to Benguela, 1,100 miles, will be in operation by January 1, 1928. Assuming for this rail haul the same per ton-mile cost as for our domestic copper, we have 1,100 miles times 53 cents, which equals \$5.83 per short ton, as the freight cost for Katanga copper delivered at Benguela, Lobito Bay, West Coast of Africa.

In scanning the tabulated rates it will be noted that the same rates prevail for Dar-es-Salaam, Beira, and Capetown to New York, Liverpool, or Hamburg.

The distance from Benguela to New York is much less than the distances thereto from any of these three other African ports; hence, a rate of \$6 per short ton is assumed as fair between New York, Liverpool, or Hamburg.

It will be noted that the assumed Benguela ton-mile cost is greater than for any of the other African ports; in fact, it is believed that, due to the cheap negro labor available, that the Benguela rate to New York or European ports for ship cargo lots will not exceed proportionally the South American to Orient rates, or about \$4 per short ton.

Therefore, the freight cost per short ton of copper should not exceed \$11.83 from Elizabethville to New York, Liverpool, or Hamburg.

Summary of transportation costs

Delivered at—	Total copper freight costs, short ton			Delivered at—	Total copper freight costs, short ton		
	Domestic	Chilean	Katanga		Domestic	Chilean	Katanga
New York.....	\$12.50	\$6.85	\$11.83	Havre.....	\$17.40	\$7.31	-----
San Francisco.....		6.85		Genoa.....	17.62	7.31	-----
Seattle.....		6.85		Buenos Aires.....	24.55		-----
Galveston.....		6.85		Yokohama.....	23.50	6.73	-----
Liverpool.....	17.40	7.31	11.83	Shanghai.....	24.00	7.23	-----
Hamburg.....	16.52	7.31	11.83				

The foregoing tabulation effectively visualizes the lower transportation costs for Chilean and Katanga copper when compared with our domestic or export costs.

(2) MINE SUPPLIES

The cost of mine supplies is much less for the Chilean copper areas than for our domestic copper areas, due to not alone enjoying a less transportation cost but also utilization of supplies from the cheapest labor areas of the world. The foregoing will also be true as to the Katanga copper area upon completion of the Elizabethville to Benguela railroad.

(3) LABOR COSTS

A. CHILEAN LABOR WAGES

The following Chilean labor cost data was secured from Bureau of Labor Statistics, United States Department of Labor, Washington, D. C., June, 1926:

The following table showing the average daily wages paid in the more important industries in Chile for the year 1924 is taken from the official bulletin issued by the Chilean labor office (Boletín de la Oficina del Trabajo), No. 22, year XIV, Santiago, 1924, p. 166. Although the above-mentioned publication did not specify as to whether these wages were paid in gold or paper pesos, it is assumed that the paper pesos were used, the average exchange rate of which in United States currency was \$0.1054 for the year 1924. The conversions have been made on this rate.

Average daily wages in Chile for the year 1924, by occupation

Occupation	Paper pesos	United States currency	Occupation	Paper pesos	United States currency
Lathe makers.....	P11.00	\$1.16	Drillers.....	P10.00	\$1.05
Mechanics.....	11.00	1.16	Metal grinders.....	10.00	1.05
Smiths.....	11.00	1.16	Miners.....	9.00	.95
Braziers.....	11.00	1.16	Gas fitters and tinsmiths.....	8.00	.84
Locksmiths.....	11.00	1.16	Bakers.....	7.00	.74
Molders.....	11.00	1.16	Truckmen.....	7.00	.74
Electricians.....	10.00	1.05	Workers in the building industry.....	5.50	.58
Bricklayers.....	10.00	1.05	Agricultural workers.....	3.00	.32
Carpenters.....	10.00	1.05			

ANALYSIS CHILE LABOR COSTS

The foregoing Chilean labor wages are approximately one-fifth the wage scale prevailing within our domestic copper areas.

This Chilean wage scale visualizes most effectively the foreign-labor competition besetting our domestic copper mines. The only way that such oppressed and low-wage labor competition can be eliminated within our domestic areas is through the medium of an adequate protective tariff.

B. KATANGA LABOR WAGES

The following extracts taken from a digest of an article in the January 2, 1926, issue of Engineering and Mining Journal Press, entitled "South Africa Copper Region":

The two principal centers of activity are Elisabethville, the seat of administration, and Panda, 88 miles northwest, where a concentrator has been erected. The Lubumbashi smelter is near Elisabethville. Smelter employees number 3,300—300 whites and 3,000 natives. Each furnace is operated by 16 natives under a white foreman.

The Union Miniere has opened up 10 mines, of which the Star of the Congo was the first. The pit is 120 feet deep and 450 feet long and wide.

At Fungurume, 90 miles from Panda, a literal "mountain of ore" exists. Steam shovels are used for digging, but their efficiency is much impaired by the ignorance of the natives that control their operation. White men are placed on locomotives, but natives operate stationary hoists. As much as possible the work of the natives is done on piece system. Of the total of mining, cost only 20 per cent is for native labor. The natives are paid from 80 centimes to 1.75 francs (par 15.4 cents to 33.8 cents, present value 2.4 cents to 5.2 cents) per day, plus food, clothing, and housing. The average cost of these items is 8 francs (par \$1.54, present value, 23.7 cents). The food ration per week consists of 15 pounds of mealie, 4 pounds of meat, 2 pounds of rice, 2 pounds of beans, 1 pound of peanuts, or 1 pound of palm oil, a roll of tobacco, and pinch of salt. The same ration is given to each wife and a half to each child. The Union Miniere employs 14,000 natives. The white employees are engaged for a period of three years, after which a holiday of six months is granted. Most of them are Belgians. The Union Miniere does not maintain the color bar; it encourages the native to learn how to become a skilled worker. In the Transvaal it is illegal to allow the native to do the work of an artisan.

At Luishia 180 young natives were being taught to do the work of carpenters and smiths. They make office furniture and window frames; they repair cars and boiler tubes. These "boys" are under contract for three years and start with a pay of 2.25 francs (par 43.4 cents, present value 6.7 cents) per day, plus food and hut. In their third year they receive 3.3 francs (par 63.7, present value 9.8 cents).

The Union Miniere by reason of its deposits of pitchblende and other uranium ores containing radium controls the world's market of this precious metal. It has

killed American production and has made two of the American companies its selling agents. This company also produces cobalt and has tin deposits.

The Katanga as a mineral region ranks with the richest and most diversified ever exploited by man.

Excavation with native labor costs 25 cents per cubic yard.

Said digest was prepared by Bureau of Labor Statistics, United States Department of Labor, June, 1926.

ANALYSIS OF KATANGA LABOR COSTS

The foregoing cost data denote that the Katanga miner receives about 5.2 cents per day plus food, clothing, and housing. His total emolument equals about 23.7 cents per day.

The apprentice carpenters and smiths receive a total of 1.5 cents more per day than the miners for the first year and 4.6 more per day during their third year.

The foregoing native wages are about one-twentieth of the wages prevailing within our domestic copper areas.

It is very evident that Katanga labor can not be termed "competitive labor"; its real designation is "slave labor."

The overwhelming menace of such labor competition as against our domestic copper miner can only be eliminated through the medium of an adequate protective tariff.

(4) KATANGA HYDROELECTRIC POSSIBILITIES

It is well known that there are vast hydroelectric possibilities within the Katanga area. In consequence its mines should be able to secure adequate electric power at minimum cost. In addition, during the exploration stage there is an ample supply of wood available for fuel purposes.

To confirm the foregoing, attention is directed to page 218, 1910 Transactions American Institute of Mining Engineers, from which the following is quoted:

TIMBER AND WATER POWER

At the present time wood is the universal fuel in the Belgian Congo, excepting for driving the locomotives of the Lower Congo Railroad. Nearly everywhere, except where the savanna is most characteristically developed, wood for fuel is abundant. For important mining operations, however, hydroelectrical installations will undoubtedly be used. Wherever the older folded rocks occur, waterfalls and rapids are common, and power can be developed in quantity very easily. * * * of all the continents, Africa will benefit most by the perfection of electrical smelting.

Attention will also be directed to the reference pertaining to the recent organization of a 75,000,000-franc company to develop hydroelectric power from Lufira Falls, to which reference will be made later on in my remarks.

(5) CHILE AND KATANGA COPPER COSTS

Criticism has been directed against the 6-cent per pound cost for copper delivered at New York, from the Chile and Katanga areas, as stated in my remarks, April 9, 1926. I shall in this analysis submit data confirming this cost.

We have at Ajo, Ariz., an oxidized body of copper ore mined by the New Cornelia Copper Co. This is the largest body of this type now being worked within the United States. Its copper poundage (see table within April 9, 1926, remarks) is only 5.2 per cent of the Chile Copper Co. poundage and 15 per cent of the Katanga poundage.

The New Cornelia Copper Co. has a daily leaching capacity of 5,000 tons per day; the Chile Copper Co. is now increasing its daily capacity to about 90,000 tons per day; the Union Minière has under way a plan to leach about 5,000 tons of ore per day.

The New Cornelia Copper Co. leaches its ore with sulphuric acid, hauled from Douglas, Ariz., about 20 miles distant; the Chile Copper Co. also uses sulphuric acid to leach its ore, but its acid consumption is less, due to the available sulphuric acid present in their ore; the Katanga ore is also to be leached with sulphuric acid. The ore at each of these three mines is being shovel-mined with steam or electrically operated ore shovels.

The average grade of the New Cornelia oxidized ore equals 1.50 per cent; the Chile Copper Co. ore equals 2.12 per cent; the Katanga ore equals 6.69 per cent copper.

In scanning the cost records of the New Cornelia Copper Co. for the five-year period, 1921-1925, we find that the maximum production year was 1923. During this year the production equaled 38,367,718 pounds of copper, obtained from 1,805,322 tons of 1.532 per cent ore, the average being 5,000 tons of mined and leached ore per day. The average shovel-mined cost was 36.4 cents per ton of ore from pit to the mill. The leaching and other expenses at the mine was 96.8 cents per ton of ore. Taxes for the year, exclusive of Federal taxes, was 0.949 cent per pound. Freight on copper from Ajo to New York was 0.689 cent per pound. The average for refining, selling, and other expenses for the five-year period, 1921-1925, was 0.968 cent per pound. The total cost for 1923, from ore pit to electrolytic copper laid down in New York, was \$1.975 per ton of mined ore.

Using the foregoing New Cornelia 1923 subdivisional cost factors we have the following comparative costs:

(A) CHILE COPPER CO. COSTS

With the average grade ore, 2.12 per cent, and a 90 per cent extraction we have 38.16 pounds of copper recovered per ton of ore mined.

Due to lower wages and lower supply costs likewise that Chile Copper Co. will mine and leach twenty times as much ore daily, it is fair to assume the New Cornelia costs.

Therefore we find the cost of mining and leaching will equal 3.486 cents per pound. The cost of freight to New York will equal 0.343 cent per pound (see transportation cost subdivision). The cost of refining, selling, and other expenses will equal 0.968 cent. Hence the foregoing mining, leaching, freight, and refining costs amount to 4.797 cents per pound; the foregoing cost is for copper from ore pit to electrolytic copper laid down in New York, exclusive of taxes. If we add the high proportional American tax, exclusive of Federal taxes, paid by New Cornelia, which equaled 0.949 cent per pound for 1923, we have the total of 5.746 cents.

With a temporary remission of Federal taxes by Chile until monopolistic control has been established, whereupon an adequate export tax would be levied, we find that Chile Copper Co. can lay down its copper in New York, San Francisco, Galveston, or any European and Orient port for less than 6 cents per pound.

(B) KATAGNA COPPER COSTS

With the average grade ore, 6.69 per cent and a 90 per cent extraction, we have 120.4 pounds of copper recovered per ton of ore.

It has been stated—see Katanga labor wages—that excavation with native labor costs 25 cents per cubic yard; this equals about 12.5 cents per ore ton.

It has also been stated—see Katanga ore-leaching details—that the expectation is to use half a pound of acid per ton of ore, this being much less than for the Ajo ore.

Katanga upon completion of the Benguela railroad and development of the cheap hydroelectric power available plus its minimum labor costs will be able to shove-mine its ore cheaper than New Cornelia. However, we shall assume this cost, namely, 36.4 cents per ton of mined ore.

Assume, for comparative purposes, a leaching cost three times that of New Cornelia and we have \$2.90 per ton.

The total for mining and leaching, therefore, equals \$3.26 per ore ton, or 2.71 cents per pound, for the 120.4 pounds of copper recovered.

The freight to New York—see transportation costs—will equal 0.60 cent per pound. The refining, selling, and other costs—same as for New Cornelia—will equal 0.968 cent per pound. Therefore the total cost per pound of copper from pit to electrolytic copper laid down in New York, exclusive of taxes, will equal 4.28 cents per pound. Adding to this the New Cornelia taxes, exclusive of Federal taxes, amounting to 0.949 cent, we have a total cost of 5.23 cents per pound.

If the Belgian Government remits Federal taxes, we find that Katanga copper can be laid down in New York for less than 6 cents per pound upon completion of the Benguela railroad.

(6) KATANGA ORE-LEACHING DETAILS

Propaganda has been spread to the effect that the Katanga ore is difficult to treat, that large metallurgical losses are met with constantly, and therefore domestic copper competition from this area should not be taken seriously.

The best answer to the foregoing is to note what certain engineers have to say regarding the leachability of the Katanga ore.

The following extracts are taken from an article appearing in the February, 1924, issue of Mining and Metallurgy, published by the American Institute of Mining and Metallurgical Engineers.

The article is entitled "Copper operations in the Congo," by Archer E. Wheeler, consulting engineer, Union Miniere du Haut Katanga, New York.

Copper operations in the Congo mean the operations of the Union Miniere du Haut Katanga, because there are no other copper industries there.

* * * * *

The concession, having Elisabethville in its southeastern end, runs about 250 miles northwest, with a width from 10 to 50 or 60 miles, having an area of about 8,100 square miles, in which territory the Union Miniere has the exclusive copper rights.

The territory in which the company operates is at an elevation of from 4,000 to 5,000 feet, and although it is only about 11 degrees south of the Equator it has a most delightful climate. The temperature in the daytime, of course, is pretty high, but never like that in Arizona, and the nights are always cool.

In many places dolomite has apparently leached out and replaced with malachite, which is by far the most important ore mineral of the district. There are some sulphides. They may later become important sources of sulphuric acid for leaching operations, which will probably be the ultimate method of treatment.

For treatment purposes the carbonate ores are divided into three classes—direct smelting, concentrating, and leaching. The direct smelting ores are any that carry enough copper to pay for treatment. Concentrating ores carry from 6 or 7 up to 15 per cent, or up to the lower limit of smelting ores, and are also of such character that they will release mineral when crushed. Leaching ores are in the nature of impregnated shales. All of these ores can be leached, and the economic limit for leaching is much lower than for concentration or direct smelting. Moreover, the profit from the leaching of any of these ores, whether it is now classed as a direct smelting or as a concentrating ore, is much greater than is possible by either direct smelting or concentration.

The work now is all on the surface and largely by steam shovels. The idea of putting a steam shovel into 20 per cent ore is something of a surprise to an American engineer.

Developed ore estimated 68,000,000 (metric) tons, containing 4,500,000 tons of copper, or an average of 6.62 per cent.

SULPHURIC ACID LEACHING ADOPTED

When I began my work with the Union Miniere my principal study was the treatment of low-grade ores. At that time they were treating nothing under 15 per cent, doing selective mining and putting such lower grade ores as it was necessary to mine on the dump.

The result of that investigation was a recommendation of sulphuric-acid leaching, which was adopted by the directors, and I was told to draw plans for that plant. Conditions were very difficult at that time; doubtful about getting the material for a leaching plant, so concentration was proposed, and finally a concentrator was built at Panda, and is now operating.

The concentrator was designed for a nominal capacity of 3,600 metric tons a day; it is actually operating at a rate of 4,000 to 4,500 tons per day. It takes ore of 7 to 10 per cent and makes concentrate carrying 20 to 26 per cent, the tailings run $4\frac{1}{2}$ to $5\frac{1}{2}$ per cent, and are impounded for future treatment. Recovery is only 45 to 60 per cent. The finer concentrate is separated from the coarse; part of it is now being sintered and then to the blast furnaces, and a part is smelted in a reverberatory furnace, one of which has recently been put in operation. This is of some interest, in that it is a reducing operation, smelting metallic copper direct from the ore.

The company's production began in 1911 with an output of about 1,000 metric tons.

The ultimate process will undoubtedly be leaching; in fact, the company has never, since 1916, when it first adopted that plan in principle, gone back on that decision. It adopted concentrating merely for expediency and continued its smelting operations.

That leaching plant will be whatever they want to make it as to capacity. The ores are there. It will profitably treat anything down to 3 per cent, and it will treat any of the prevailing classes of ore with a greater recovery and at less

cost than any other method. We can make an extraction of 97 to 98 per cent, according to the grade of the ore, and the final recovery depends upon the care exercised in washing the tailings.

As further corroboration of the foregoing, there appears within the January 2, 1926, issue of Engineering and Mining Journal-Press regarding Union Miniere leaching details the following:

The expectation is to use half a pound of acid per ton of ore.

Three electric furnaces are used principally to reduce cobalt-copper ores, making a copper-cobalt-iron alloy which is sent to Antwerp for refining. At the time of our visit two of these furnaces were reducing a 25 per cent copper concentrate, getting a 97 per cent metal and a 2 to 3 per cent slag. The energy consumed in this operation is 700 kilowatt-hour per ton of copper produced.

Nevertheless, the mines will not be on a proper footing, and can not be exploited satisfactorily until the more adequate metallurgical equipment now under construction has been provided. Here I may make note of the fact that the equipment is defective partly because it was assembled hurriedly during the war at a time when it was extremely important to produce copper for the making of munitions; in short, the technical efficiency of the plant was sacrificed, measurably, to the urge for aiding the great cause to which Belgium was so courageously committed. (Nor, I may add, is rich ore conducive to technical precision of method.)

but even more tinged with sadness is the fact that the greens are made of pulverized slag containing 3 per cent of copper. Even to a pseudometallurgist like myself it was positively tragic to play the little innocent white ball over slag so rich in copper.

Power is to be developed at the falls of the Lufira River. The ore may require agitation before leaching, on account of its clayey ingredients, and this may entail larger vat capacity, as well as a greater consumption of power, than either at Ajo (New Cornelia Copper Co., Arizona) or Chuquicamata (Chile Copper Co., Chile).

The new leaching plant is expected to yield 30,000 to 35,000 tons of copper per annum, and this plant is to be trebled in due course, so that eventually 100,000 tons of copper is to be obtained by leaching, with as much more by concentration and smelting. The refinery now being built at Hoboken, near Antwerp, is to treat 40,000 tons of metal per annum. The Belgians look upon the Union Miniere as a national undertaking, which in part it is financially, and they do not seek assistance outside their own people.

In analyzing the foregoing statements we are arrested by the following points:

First. That there seemingly is no question but that the most efficient and low-cost method for treating the Katanga ore is by leaching the ore with sulphuric acid, the same method as used by the Chile Copper Co. and the New Cornelia Copper Co.

Second. Mr. Wheeler states that the plant capacity can be whatever size desired. "The ores are there." In the last article quoted aforegoing we note that they even now are contemplating an output aggregating 400,000,000 pounds of copper per year. Considering their enormous reserves, also the high grade of the ore, 6.7 per cent, likewise the ease of mining same, this present contemplated output whenever desirable can readily be increased to 900,000,000 pounds per year.

Third. Mr. Wheeler states that 3 per cent ores can be profitably leached, with a 97 per cent extraction. With copper at 13 cents—the prevailing price for 1924—we have a gross value of \$7.57 for a 3 per cent ore. Assuming that the profit of this 3 per cent ore offsets the additional freight and selling costs, due to the increased copper poundage of the higher-grade ore, we find for the average 6.7 per cent Katanga reserve ore a cost of 5.82 cents per pound, based on a 97 per cent extraction.

This cost compares with the deductive cost of 5.23 cents per pound derived when comparing the New Cornelia copper cost with the probable Katanga copper cost.

This cost likewise compares with the 6-cent cost stated by me in my April 9, 1926, remarks.

(7) DATA PERTAINING TO CHILEAN COPPER AREAS

The following information is the most recent I have been able to obtain as to the Chilean copper areas. It was secured from the Engineering and Mining Journal-Press:

* * * * *

CHILE COPPER CO.

(January 16, 1926, p. 125)

This construction program initiated in 1923 was practically completed during 1925. This program provided for the "round out" of the plant so as to assure an annual capacity of 240,000,000 pounds of copper. Early in 1925 additional plant extensions were decided upon. These extensions will increase the capacity to 350,000,000 pounds annually. Construction work under this latter program has been carried on, and it is expected that the new equipment will be ready for operation in the early part of 1927.

* * * * *

The Andes Copper Mining Co., a subsidiary of Anaconda, is engaged upon a construction program at Potrerillos. A metallurgical plant is being built and preparations for opening the mine are under way, about 5,000 men being employed. It is expected that operation on a production basis will take place in the early part of 1927.

* * * * *

The Braden Copper Co. had another good year and will make about the same production in 1925 as was made in 1924. * * * The company mined 4,223,856 tons of ore, averaging 2.34 per cent copper, in 1924.

* * * * *

(May 22, 1926, p. 869)

Incidentally, a potential producer is Anaconda's child, Andes copper, which should be ready to contribute 190,000,000 pounds in 1929 and part of that in 1927.

* * * * *

The foregoing denotes that the Chile Copper Co. is now increasing its annual capacity about 50 per cent, namely, to 350,000,000 pounds of copper.

Also, that a production of 190,000,000 pounds of copper per year will soon be forthcoming from the Andes Copper Co. area.

With Braden Copper Co. now producing 190,000,000 pounds, we are now confronted with an annual production of 730,000,000 pounds from the Chilean copper reserve.

They can readily expand this production 50 per cent, or to 1,100,000,000 pounds annually whenever desirable, as stated in my April 9, 1926, remarks.

It is absurd to claim that all this increased Chilean production is for any other than our domestic market. Africa's huge production increase will more than care for Europe's requirements.

The large importation increase from Chile the past decade affords ample evidence as to the route this increased production will take. It will flow into all our domestic ports with ever-increasing volume unless checked by an adequate tariff.

(8) DATA PERTAINING TO KATANGA COPPER AREA

The following information is the latest I have been able to secure regarding operations within the Katanga copper area. It was obtained from the Engineering and Mining Journal-Press:

* * * * *

(January 16, 1926, pp. 127, 128)

In 1925 the Belgian Congo was first as a world producer of radium, second as to diamonds and cobalt, third as to copper, and about twelfth as to gold.

* * * * *

On January 1, 1925, there were 11,539 whites in the colony, of whom 6,857 were Belgians.

* * * * *

Congo, like other African colonies, needs better transportation, and of the \$50,000,000 derived from the Belgian bonds floated in the United States in June approximately one-half was to be advanced for the construction or improvement of public works.

* * * * *

The Union Miniere du Haut Katanga * * * produced somewhat over 90,000 metric tons of copper in 1925, an increase over the 1924 production of 5 per cent.

* * * * *

The increasing importance of the company, particularly during the last year has drawn the attention of the copper world to its operations.

* * * * *

On January 1, 1925, the reserves were 74,686,600 tons of ore, averaging 6.65 per cent copper, equivalent to 4,998,000 tons of metal. The staff numbers 1,350, and 14,000 blacks are employed, 50 per cent being Rhodesian natives.

* * * * *

In 1924 most of the copper was shipped via Beira, but about one-tenth went out of the colony by Dar-es-Salaam.

* * * * *

In February, 1925, new securities were issued, netting the company about \$7,500,000. This money will be used in erecting leaching works * * * and furnace plant * * *. Work was started on these in 1925. To generate hydroelectric power at Lufira Falls to run these works, the Societe Generale des Forces Hydroelectriques du Katanga, capital 75,000,000 francs, was formed in November. The capital interested is closely allied to that in the Union Miniere. In 1924 the Union Miniere paid a dividend of 150 francs per share, 138 francs free of income tax.

* * * * *

The shares of the Tanganyika Concessions, which holds a substantial interest in Union Miniere, during 1925 advanced decidedly in the stock market, due in part, it is said, to American buying. Incidentally, Americans are reported to have bought some Union Miniere shares. In March the former company increased its capital by an issue of 2,000,000 shares, 1,500,000 of which were offered to old stockholders at 22s. each. The money received was to be used in constructing the Benguela railroad and to take up its proportion of the new Union Miniere shares issued at the same time. In July, for the first time, the ordinary shares received a dividend (1s. a share).

The Societe Generale Metallurgique de Hoboken, which refines much of the metallic product of Katanga, increased its capitalization from 28,000,000 to 40,000,000 francs in 1924, the Union Miniere continuing its large interest therein.

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(May 29, 1926, p. 884)

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The electrolytic copper refinery in erection at Oolen (Belgium) by the Societa Generale Metallurgique de Hoboken, in conjunction with the Union Miniere, will have a capacity of 80,000 metric tons per annum.

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Owing to the increasing employment of machinery, the number of workers employed does not increase in proportion to the production; in 1925 the production of copper was 90,000 metric tons and the number of natives employed totaled 14,000, compared with 30,000 metric tons of copper and 12,000 natives in 1921.

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It appears from the foregoing that conditions are excellent within the Katanga area—ample funds are available for building leaching works, hydroelectric plant, Benguela railroad, and refineries; dividends were also paid.

It will also be noted that Americans are reported to have acquired shares of the Union Miniere and the Tanganyika Concessions companies. This denotes that these foreign copper companies will undoubtedly also have associated with them some of the leaders of our domestic copper-mining industry. Our domestic copper miner can expect such American investors to oppose his demand for an adequate tariff protection. It will be most interesting to note the degree and the form of the opposition manifested by these investors to a copper tariff. Just how far they are willing to go in crushing our domestic industry in order to obtain maximum profits from their oppressed foreign labor area investments.

It is not believed that they will exercise restraint or maintain an attitude of neutrality as foreign investors should. It is probable that their identity as leaders will stand clearly revealed when they openly champion the policy of free-trade copper, which as a policy can only benefit the destroyers of our domestic copper-mining industry.

(9) DOMESTIC FABRICATED COPPER VALUES

Fabricated copper products are protected. This industry does not meet unrestricted foreign competition. Their raw resource, namely, copper, is on the free list.

Extended data will not be submitted as to the great increase in all fabricated products to-day when compared with their value 30 years ago. I shall merely present the increase of certain foundational details—such as wire, sheets, etc.—not the fabricated products more directly used by the consumer.

Referring to Engineering and Mining Journal-Press, page 183, January 23, 1926, we find the following:

* * * * *

Brief financial records of the leading wire and brass companies showed that their profits were, without exception, far above those of most copper producers.

* * * * *

A tabulation of the differential between the price of crude copper and the price of wire, sheets, and other copper and brass products, taken from Mining Journal-Press quotations over a term of years, gave an indication of what the manufacturing profits must be. "For instance, beginning with 1912, the differential on sheets for each succeeding year was as follows: 5¼ cents, 7½, 7¼, 5¾, 7¾, 16, 8, 14, 10½, 8½, 7¾, 7½, 8¼, 8½, and on January 12, 1926, 8¾ cents. The current differential on wire was 2½ cents, though the manufacturing cost was said to be about 1 cent. The spread on copper bottoms was 18¾ cents.

(10) COPPER SHARE VALUES

The value of an industry is represented in the share values of the leading companies operating therein.

It is of interest to note the buoyant tone of foreign copper shares and the gloom surrounding our domestic copper shares:

(A) FOREIGN COPPER SHARES

Taken from Engineering and Mining Journal-Press, page 750, May 1, 1926:

OPPORTUNITIES IN BRITISH COPPER SHARES

The speculator who wishes to indulge his fancy in copper shares must turn to the new African fields, says the Statist, a London financial paper. The Tanganyika and Rhodesia areas are undoubtedly destined to become ultimately challengers of the United States' supremacy among copper producers of the world. The Union Miniere output for 1925 was slightly lower than the 1924 production, but this is not to be taken as evidence of an incipient decline. The company's ore reserves have as yet scarcely been touched; they have been calculated at nearly 5,000,000 tons of copper. Any increase in the dividends paid by this company will be reflected in an appreciation of the shares of Tanganyika concessions, which is largely interested in the Belgian company.

Two Rhodesian companies, whose shares should appeal as speculative lock-ups, are the Rhwana M'Kubwa and the Kafue Copper. The former has proved the existence of a very large body of low-grade ore on its properties. * * * The Kafue Co. owns properties in northern Rhodesia. * * * Prospecting work has been carried on over areas adjoining the company's properties and would seem to indicate the existence of valuable bodies of ore.

(B) DOMESTIC COPPER SHARES

Taken from Engineering and Mining Journal-Press, page 154, January 23, 1926:

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In the annual review number of Mining Journal-Press—the issue of January 16, 1926—was published the usual tabulation of mining-stock prices during the last year, and for the first time the net change for the year was also included. Of 52 copper companies, the share quotations of 41 were less on December 31, 1925, than on the same date of 1924, only 11 being quoted higher. This does not indicate much optimism by investors as to a marked improvement in the copper market and, compared with the prices of industrial securities, shows a marked aversion to invest in the stocks of copper producers as a group. Quite a different story is exhibited by the lead and silver-lead groups, in which 17 stocks show an increase and only 7 declined, though the price of lead was 9¼ cents at the end of 1925, compared with 9.70 cents a year before. Apparently no serious reaction is expected to affect this group. Gold mines also seem to be well considered, for of 25 companies the shares of 19 advanced during the year. The continued favorable development of the northern Ontario mines helped this group. In the straight silver group the shares of 7 companies advanced and those of 5 declined, and of the iron and steel companies, 9 were considered more valuable and 8 less so. All the shares of the specialty group, embracing asbestos, sulphur, vanadium, diamonds, and platinum advanced, and of the mining, smelting, and refining companies, advances were registered in seven out of the eight companies in the group. Plainly, custom smelters are expected to do well.

Copper companies, therefore, are the only ones in which the investing public is disappointed. It has hoped for fancy prices too long, and too many interviews have been printed in which some president or chairman says the European demand must soon be enormous; that domestic demand is unprecedented; that stocks are insignificant; and that higher prices must of necessity result within the next six weeks. "The price should be firmly at the 15-cent level in 30 days" is a favorite expression, and yet the fireworks never explode.

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The foregoing article emphasizes the lethargy within our domestic copper-mining industry when compared with all the other metal-mining and metal-fabricating industries. All these other domestic metal industries except gold and silver are protected. Copper is the only metal on the free list.

(11) DECLINE OF THE DOMESTIC COPPER-MINING INDUSTRY

It is very evident that something serious has happened within our domestic copper-mining industry the past decade.

Arizona produces about as much copper as all the other States combined. Hence a study of her economic facts should convey an idea as to actual conditions within the other copper-producing States.

The following data obtained from the Engineering and Mining Journal-Press, page 736, May 1, 1926, will convey an idea of the serious decline within the copper areas of Arizona the past few years:

TWENTY MINES ON TAX ROLLS OF ARIZONA

In 1912 there were 82 producing mines on the tax rolls of the State of Arizona. Many of these mines are now worked out and closed. Other mines are unable to operate at the present price of copper, and some of them have been closed for five or six years.

In 1918 there were 46 producing mines on the tax rolls of the State. The producing mines in the various counties have decreased as follows:

	1912	1926		1912	1926
Cochise County-----	16	7	Pima County-----	15	3
Gila County-----	12	5	Pinal County-----	6	2
Greenlee County-----	7	1	Santa Cruz County-----	3	0
Maricopa County-----	2	0	Yavapai County-----	9	2
Mohave County-----	10	0	Yuma County-----	3	0

This reduction in the number of mines does not tell the whole story. Of the mines now operating, four have not paid dividends since 1920. Three have not paid any dividends since 1919. One of the largest companies in the State has paid only two dividends since 1921 and another of the large companies has paid only three dividends of 50 cents each per share since 1920.

The foregoing conveys an idea as to the depression within the developed copper areas. When consideration is given to the fact that hundreds of our undeveloped copper districts are virtually abandoned—no explorations being carried on therein—the real seriousness of the situation stands revealed.

Money can not be obtained to explore these potentially valuable areas, hence no new ore reserves are being developed.

This domestic development money is seeking the vaster profits within the cheap-labor areas of South America and Africa, claiming that our domestic copper, due to higher wages, higher transportation and supply costs, plus a lower grade product (ore), can not compete with the foreign product.

The foregoing high-cost factors are undoubtedly true as to our domestic copper-mining industry, yet equivalent high-cost factors universally prevail within all the other important industries within our homeland.

The basic reason for our industrial supremacy is due to protecting domestic industry within our home market, thereby compensating for this higher cost differential—maintaining domestic industries—not permitting their destruction through unlimited importations, duty free, of the cheap-labor products of foreign lands.

Our domestic copper miner is not seeking to tear down the economic barrier now encircling and protecting millions of his industrial brothers; all he seeks is equality and justice. He is pleading for protection, thereby permitting him to survive industrially.

SUMMATION

The foregoing cost details for the Chile and Katanga copper areas undeniably prove—

(1) Lower transportation cost than our domestic cost for copper delivered not alone to our domestic ports but likewise all foreign ports.

(2) Lower transportation cost for supplies, likewise much cheaper cost supplies than for supplies used within our domestic copper areas.

(3) Vastly less labor cost when compared with the labor cost prevailing within our domestic copper areas.

(4) Less mining cost, due to a lower wage, supply, and transportation cost, plus higher grade of ore mined.

(5) Less leaching cost, due to a lower wage, supply, and transportation cost, plus higher grade of ore treated.

(6) That all these principal subdivisional low-cost factors denote that Chilean and Katanga copper can be delivered at New York at a cost price not to exceed 6 cents per pound.

(7) That Chilean and Katanga copper can be delivered in any European port at 6 cents per pound.

(8) That our domestic copper, which costs about 12 cents per pound at New York, as outlined in my April 9, 1926, remarks, and more than this delivered at European ports, can not compete either within our domestic market or abroad with this low-cost foreign-produced copper.

CONCLUSION

In view of all the foregoing factors, plus the factors outlined in my April 9, 1926, remarks, there is no question but that the Chilean and Katanga reserve copper poundage, upon completion of efficient operating facilities, can produce 2,000,000,000 pounds of copper per year, deliverable at New York or any foreign port at a cost not to exceed 6 cents per pound.

This statement means that our domestic copper, which costs about 12 cents per pound to produce, can not meet either foreign or domestic competition under the foregoing cost and greater production conditions whenever these foreign producers desire our markets.

Attention will also be directed to the fact that these foreign producers have already taken over the foreign market and are rapidly—not too rapidly, however, in order to avoid the open hostility of our purely independent domestic copper producers—invading our domestic market as well.

The independent copper producer, operating under this foreign manipulative economic handicap, is doomed, and nothing but immediate efficient protection will permit him to survive industrially.

I challenge these dual controllers and any other champion of free-trade copper to submit an analytical detailed rebuttal of the foreign cost and production factors which are rapidly destroying our purely independent copper producer, as cited by me to-day, also on April 9, 1926.

It would indeed be most interesting to review any answer they might attempt to offer in reply thereto.

